CENTRE FOR BUSINESS, INFORMATION TECHNOLOGY AND ENTERPRISE

A Review of Factors Influencing Open Source Software Adoption by Users in IT Profession

Research Project Report

Submitted to

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Statement Of Authenticity

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I certify that this is all my work, except for those parts identified for which references have been made.

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Abstract

Globally, the acceptability of Open Source Software (OSS) among Information Technology (IT) professionals is evolving. There are many previous studies on developer's contribution to OSS project implementation and organizational acceptance, but there is astonishingly little study on OSS adoption by users, regardless of the social, practical, and infrastructure-related impacts of OSS adoption and the acceptance of these OSS products did not gain much awareness in the developing countries like India. Therefore, the study's major goal is to investigate the benefits of OSS over other types of software for Indian IT sector professionals, assess the present state of adoption, and determine the factors that influencing the OSS user acceptance/adoption. The current study aims to determine the dependent and independent variables, as well as the factors that influence individual attitudes about OSS adoption and advantages and disadvantages of OSS over another type of software such as Proprietary Software(PS). As a result, the proposed study explores the impact of OSS features and characteristics on OSS acceptability using a theoretical model. The "Unified Theory of Acceptance and Use of Technology (UTAUT)" framework is used to construct and present the infrastructure aspects of accepting OSS systems. This study provides a literature review on software characteristics on OSS adoption.

Using a quantitative design, a questionnaire with 28 questions was distributed to over-18-year-old IT professionals in India. As per the data analysis results, this survey received 403 valid responses in that 85.6% of respondents were familiar with open source. It is found that 0.966 for Cronbach's Alpha measured across 16 questionnaires indicates that the framework used is a good fit for reliability testing. Univariate Analysis - Chi-square indicates that software quality, software security, cost, performance expectation, employee effort expectation, and social influence are significant factors affecting behavioral intentions to adopt OSS with a p-value of = 0.000 and less than significance level value 0.005. According to the linear regression results, Security significantly affected performance expectancy (with β=0.6515 and P <0.001 and t-value=16.942 and 45.9% variance due to IT Specialty), performance expectation significantly influenced behavioral intentions (with β=0.206 and P <0.001 and t-value=4.014 and 55.1% variance due to IT Specialty) and Effort expectancy had a significant impact on behavioral intentions(with β=0.2585 and P <0.001 and t-value=4.953 and 53.1% variance due to IT Specialty). In the descriptive analysis results, the results showed that OSS quality is good and is more secure when compared to PS with results of 56.71% and 43.6%, respectively. 31.43% of respondents believe that OSS has improved their performance, OSS is easy to use according to 30.7% of participants, 30% people claimed that OSS is less expensive to maintain than PS, 31.7% respondents were motivated by organizational influence, and 28.4% answered that the community provides support when needed. According to 235 IT users, the OSS has better characteristics when compared to PS.

Although most respondents replied OSS is better than PS in the survey, due to the low response rate, it is imperative to educate users about the advantages of OSS in developing countries such as India and to maximize usage and acceptance. Results showed that performance expectancy, effort expectancy, social influence, software security, software quality, and software cost and maintenance are important indicators in the acceptance and adoption of OSS. Further research can be conducted in wider Geo-graphical locations to observe the acceptance and adoptability of OSS.

Keywords: Information Technology (IT), IT Profession, Software, Open Source Software (OSS), Proprietary Software(PS), Acceptance of OSS, OSS adoption, OSS Characteristics, Unified Theory of Acceptance and Use of Technology (UTAUT).

1. Introduction

1.1. Introduction

Globally, the adoption of OSS in software projects has grown rapidly in recent years, but its acceptance varies among IT professionals (Loon, 2015; Jan 2018). Therefore, it is essential to understand what factors influence IT users to adopt or accept OSS, especially in developing countries such as India. The Abbreviations of all fields used in this report are defined in Appendix A1. Abbreviations. In this introduction chapter, Section 1.2 discussion illustrates the OSS background. Section 1.3 provides the research aim and the purpose of the study. The study contribution is presented in section 1.4. The report structure is presented in section 1.5 Section, 1.6 presents the conclusion.

1.2. Background

Linus Torvalds, a 21-year-old Finn, started developing a free operating system named Linux as a summer hobby in 1991. It changed the way software development was carried out forever. The Linux project is one of the best-known operating systems with more than 18 million lines of code and 12000 developer participants (Boras, Balen, & Vdovjak, 2020). It is an astonishing success by almost any measure, and part of that success can be credited to a development process known as "open source" (Anthes, 2016).

Almost every company on the globe currently employing OSS in their projects. Microsoft, once the biggest opponent to OSS, is now an enthusiastic supporter of OSS. Even its windows operating system is using OSS technology. Not only that even Facebook, Amazon, Google, Netflix software are OSS (Bosu & Sultana, 2019). There are different types of software such as PS, OSS, Freeware, Pirated Software, and so on but the current study is trying to find the advantages and disadvantages of OSS over PS.

Any program that is copyrighted and has limitations on usage, distribution and modification imposed by its publisher, vendor, or creator is considered PS. This type of software remains the property of its creator/owner and is utilized by end-users/organizations under strict constraints. On the other hand, OSS is software that is developed and released with an open license that allows the users to use, modify and redistribute the source code of the software product as per the requirements (Oyelude, 2016; Vasudeva, 2012). OSS is a collaborative effort by a software developer group. OSS is often referred to as free software which reflects the liberty of using the code and not the price of the software product (Ballhausen, 2019). Open-source communities worldwide have developed several OSS products, which are utilizing largely in the IT sector by technically sophisticated users or in larger IT infrastructures (Hauge, Ayala, & Conradi, 2010). IT professionals often use commercial copy-right software, such as PS, although OSS often has many advantages (Kumar, Kumar, & Tiwari, 2018; Zhu & Zhou, 2012). OSS usage is limited due to a lack of awareness about its benefits and usefulness.

During the past decade, the trend of the open-source model has changed traditional software development. OSS project numbers have grown noticeably, and well-known organizations such as Microsoft and IBM have begun to use OSS in their development efforts. According to Wen, Ceccagnoli, and Forman (2016), the open-source model has even started to be applied and adapted to products beyond software, especially in developing countries like India. The Indian IT sector has around 4.3 million professionals by the year 2021 and the revenue has grown by over 191 billion U.S. dollars(IBEF, 2021; Statista, 2021). Now the power of OSS has changed the IT sector and without it, the firms are unable to scale up the business and client support. As an effect, academic research on the OSS movement has grown in recent days. So, the present study aims to examine the factors that influence the acceptance of OSS by IT users over other types of software available in India.

1.3. Research Aim

The rapid growth of OSS around the world has become one of the most awe-inspiring technological developments in the last 20 years (Loon, 2015; Jan 2018). The prior studies are focused mainly on the individual personal intentions on contributions to OSS projects development and organizational acceptance of OSS. But the research on OSS adoption from the perspective of users or individuals in the IT field, especially in developing countries such as India has not gained much attention. Thus, the present report's primary purpose is to find what are the main factors that influence the IT professionals to accept /adopt OSS in developing countries such as India by addressing the below questions.

- To investigate the factors and variables which will affect personal attitudes towards OSS adoption and IT usage over other Types of software such as PS.
- To identify the OSS adoption on IT professional's performance
- To find the organization's influence on OSS adoption by IT professionals.
- To identify how easy to learn and adopt OSS
- Advantages and disadvantages of OSS over PS.

This study concentrates on how software features influence the user's behavior to accept OSS usage. Consequently, the outcome of this research helps to find whether OSS is a better option over other types of software or not in the Indian IT community.

1.4. Research Contribution

The present report reviews the existing literature. This report addresses the gap in the literature on OSS adoption by IT users, OSS adoption advantages, and OSS adoption disadvantages compared to other types of software, such as PS. Furthermore, the study extends the existing research to identify and analyze what factors influence the Indian IT professional's intentions to accept or adopt OSS by identifying and analyzing different software characteristics.

1.5. Report Structure

To continue this research the below report structure is shown in Figure 1 Report Structure.

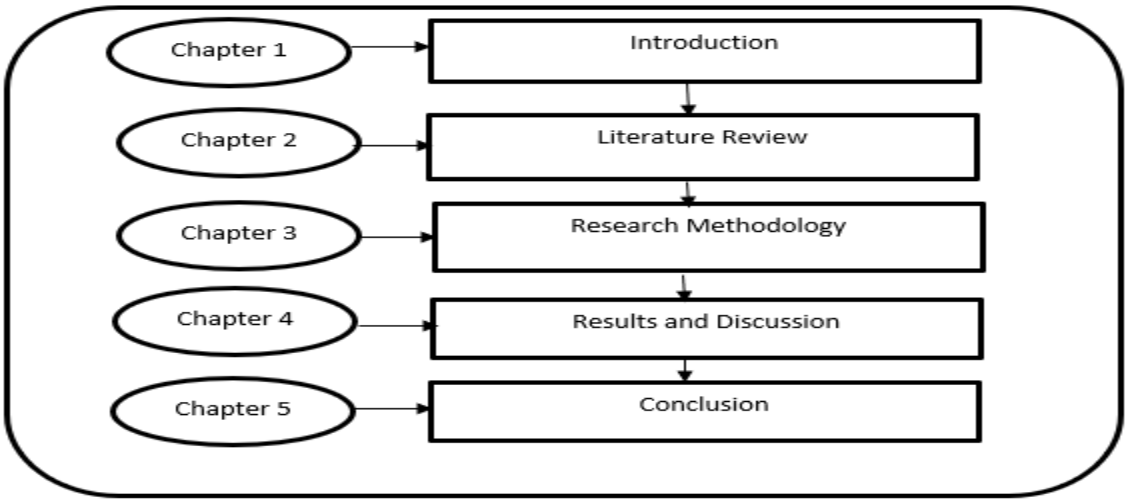


Figure 1 Report Structure

The background context and purpose of this research are presented in First Chapter.

The second chapter discusses the findings from the existing literature. PRISMA has been used to conduct a literature review on 90 previous articles in a relevant field. The findings from the literature review led to the establishment of the research motivation.

The third chapter discusses the research methodology and the design. This chapter revisits the research questions and presents the hypotheses that have been developed. There is also a mapping between the research questions, the hypothesis, and the hypothesis-testing procedures that are provided. The research framework structure is discussed in this chapter.

The fourth Chapter is the outcome of survey data analysis. To assess the connection between variables; descriptive analysis, Chi-Square analysis, and the Regression test were used. This Chapter also includes a discussion of the research result.

Finally, Sixth Chapter presents the conclusion of this report.

1.6. Conclusion

In today's modern software-intensive societal ecology, OSS has become a great resource. In this context, it is critical to comprehend the factors that influence software selection. Due to time constraints, the study is limited to Indian IT experts. India's IT community has increased from a few thousand to around 4.47 million people by the year 2021. Thus, this researcher contributes to study the existing literature to understand OSS adoption by users in the IT profession. An existing literature review can be used to assess the significance of user acceptability. The PRISMA systematic review will be presented in the following chapter to demonstrate the literature gap to create the research questions along with hypotheses.

2. Literature review

2.1. Introduction

This chapter gives a critique of the previous research on OSS. The primary focus of this review is on how various characteristics of OSS influence users' intentions to accept OSS. Hence, The PRISMA literature review is conducted to find the relevant articles which are explained in section 2.2. Section 2.3 discusses OSS and its usability. Section 2.4 discusses the competition between OSS and other types of software such as PS. Section 2.5 to 2.10 presents the OSS characteristics. The behavior intention of users to adopt OSS is discussed in section 2.11. In every section, the gaps in the literature are presented and the research questions with a relevant hypothesis are developed.

2.2. PRISMA Literature Review

In the Indian IT sector, commercial copy-righted software has dominating over the years and is influencing various aspects of technological development (Singh, Bansal, & Jha, 2015). However, a growing number of government agencies and tech companies are abandoning PS in favor of more cost-effective approaches like OSS which is become one of the most current development processes in the current trend(Sarma, 2016; Syeed, Hammouda, & Systä, 2013). The reliability, quality, security, performance, and usage efforts of OSS, as well as the free availability of the source code, are interesting features. Not only does the OSS desktop environment resemble that of PS solutions, but it also outperforms them in many ways. However, there have been very few evaluations or empirical studies on the use of OSS by individuals for their personal needs or in their profession, as well as the prominent factors influencing the decision-making process of OSS usability. The software characteristics are the main behavior influencing factors of OSS adoption (Alsoub, 2018; Alrawashdeh, 2020). As a result, this literature analysis helps to explore how those characteristics influence OSS acceptance over the most often used PS. Figure 2 depicts the PRISMA flow chart for the review of the literature.

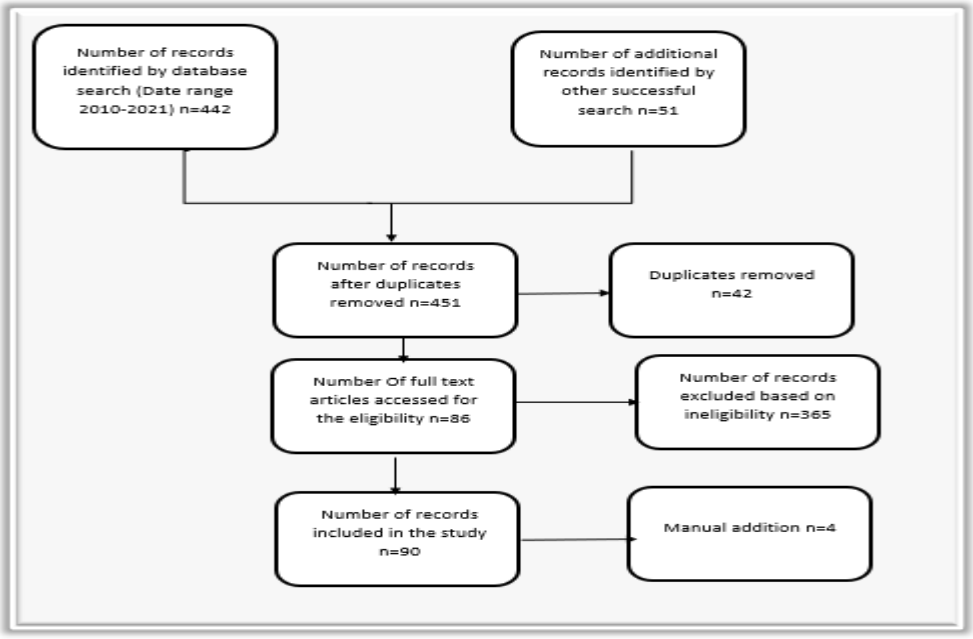


Figure 2 PRISMA flow chart

This systematic literature review was carried out using the PRISMA guideline process(Selçuk, 2019) in below Table 1. This Protocol is used for creating the best search to find the relevant articles from the database(Martins, Rampasso, Anholon, Quelhas, & Filho, 2019).

Table 1 Literature review Protocol

Content	Description
Background	In this study, the researchers aim to understand the factors that influence OSS adoption across the IT profession in India. Reviews of literature explore OSS, advantages, and disadvantages of OSS over PS and OSS characteristics
Search strategy	A combination of the WINTEC digital library and Google scholar is used to find literature reviews. The papers used are peer-reviewed journal articles and research papers published between 2010 and 2021 in the English language. Few papers before 2010 year were also used. The following keywords are used as search terms: OSS/Open Source/Software types/Software features/Software Characteristics/ OSS Usability/IT.
Study selection procedure	This research uses Peer-reviewed articles. These articles contain more than 2000 words that were published in English. Articles contain keywords such as acceptance of OSS, Information Technology (IT), IT Profession, Open Source Software (OSS), OSS adoption, OSS Characteristics, Unified Theory of Acceptance and Use of Technology (UTAUT). Some original documents that are published before 2010 were also used for the research to understand the topic and research procedure in the depth.
Study quality assessment checklists	The below checklist is used to assess the quality and procedures literature. The literature presents significant data about the topic with value references. Checklist: • Peer-reviewed articles. • The article's contents must be Full-text articles. • The articles must be published in the English language. • Keywords must relate to the research topic.
Data extraction strategy	Academic articles with journal-title and an article name, name of the author and published date, a summary of the article, the objective of the research, sum up, findings and analysis.

Journal articles, peer-reviewed papers, are the source of this research. Google scholar and WINTEC's digital library are used to find 90 articles published before 2010 to 21. The paper also includes few other articles that were published before 2010.

The strategy used in this search is based on applying relevant keywords in English in conjunction with logical operators AND and OR. The operation has returned 451 articles, of which some duplicate articles have been eliminated by screening the articles for the correct

abstract and summary and by excluding some irrelevant articles. Based on the inclusion and exclusion criteria shown in Table 2, 90 relevant articles were retained.

Table 2 Inclusion and Exclusion Criteria

Criteria for Inclusion	Criteria for Exclusion
Peer-reviewed articles	Non-academic peer-reviewed articles
Papers in English	Non-English
Published in the mentioned databases	Papers from the irrelevant database.
Full-text articles	Incomplete papers

The collected papers are organized in a Literature map as presented in Figure 3 below, which is a way to illustrate the process to conduct the research and the related literature area presented throughout the research.

A concept map is a way to show the literature topic or areas covered throughout the research and the process of conducting the research (Hlee, Lee, & Koo, 2018). The literature map (Figure 3) shows the outline and foundation of the research. Every topic is defined clearly in this part. This concept map is created by the researcher with the help of www.coogle.it online application.

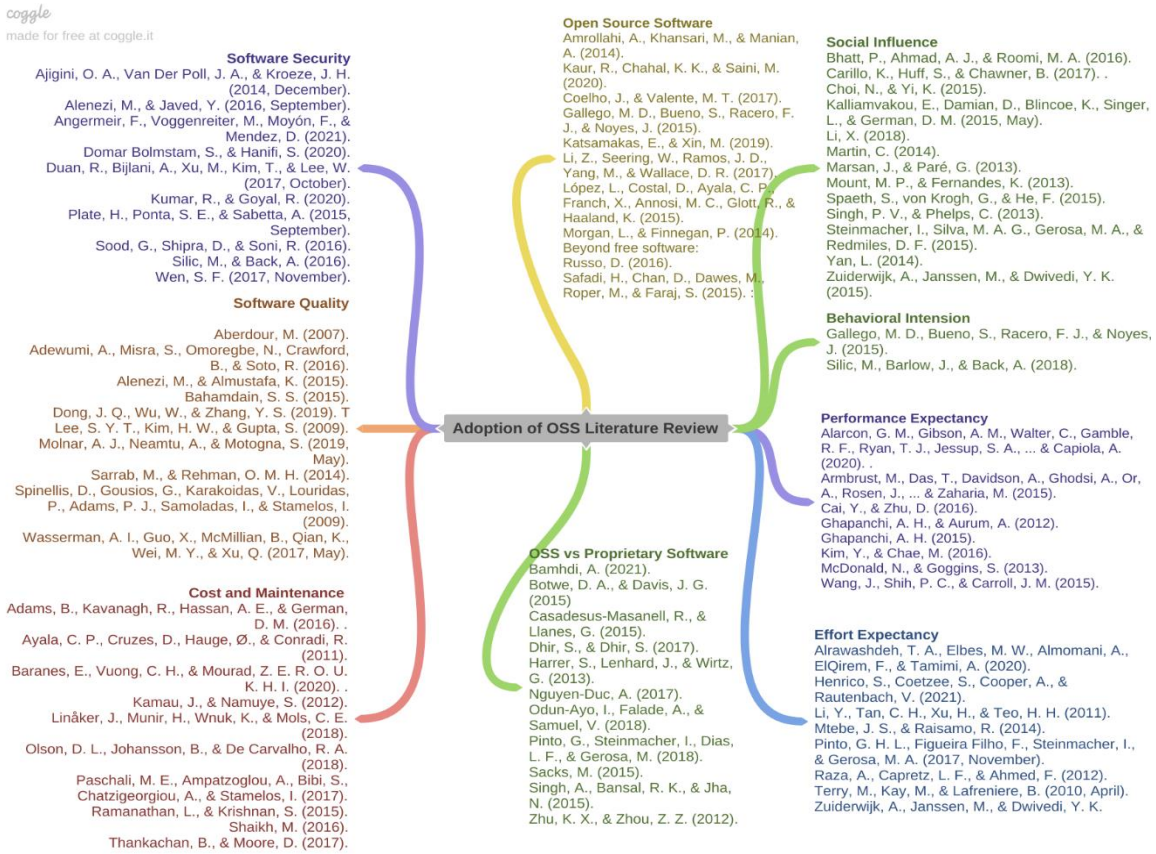


Figure 3 Literature review map

In the literature, the key concept is acceptance of OSS. The concept map shown in Figure 4 demonstrates different sections of the literature review. These sections are focusing on the review of OSS background, comparing the OSS with PS by exploring the advantages, and disadvantages of OSS over PS, Exploring the OSS characteristics, like quality, security, cost, maintenance, ease of use, and performance, as well as reviewing the social influence factors that are impacting the behavioral intention of users to adopt OSS.

The literature review emphasizes the gap in software adoption concerning the influence of the OSS features. The existing literature provides limited details about how the OSS adoption varies between the various groups particularly in IT specialists. For example, many researchers have discussed those demographic variables influence the acceptance of software (Esposito et al., 2019; Valiev, Vasilescu, & Herbsleb, 2018). The current study, therefore, identified software characteristics as core components of OSS and explores its effect on user's intentions and real usage. The research even tries to use IT as a moderator to understand the acceptability of open source applications and related problems in detail. Especially the current study integrates these software characteristics with the UTAUT model framework.

2.3. UTAUT Framework

Software acceptance is one of the widely studied topics in the literature. Several researchers attempted to identify the software acceptance from different angles by defining the factors that impact the acceptance and these factors mainly focused on user satisfaction, motivations, usability, and social identification (Baptista and Oliveira 2015; Cheng et al. 2015; Cheng 2015; Jaquero et al. 2019). The concern of the prior studies is that there are very few studies have identified the acceptance and adoption of OSS based on the software characteristics. According to Michael et al. (2011), eight research models have been used in software system adoption studies, and among those models, UTAUT is a widely used cited model which is cited 450 times. Based on the study of reference paper by Venkatesh et al. (2003), this UTAUT model framework integrated the elements across the eight prominent models and the core constructs in every eight models have been theorized as the determinants of IT behavioral intentions. UTAUT contains four core determinants of behavioral intention-performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh, Morris, Davis, & Davis, 2003). Although the UTAUT model is relatively new, it has inspired researchers to try its suitability in different contexts (Ong et al.2004; Koivumäki, 2008). One of the strengths of the UTAUT model is that it considers the role of several moderating variables, namely gender, age, experience, and voluntariness of use (Venkatesh, Morris, Davis, & Davis, 2003). These moderators are assumed to influence the significance of the four core determinants.

For this study, the researcher modified the original theoretical framework UTAUT model presented in the research by Venkatesh, Morris, Davis, & Davis (2003). The modified model uses software characteristics such as quality, security, cost, and maintenance and other determinants such as performance expectancy, effort expectancy, social influence as core determinates to quantitatively examine the OSS user's adoption/acceptance in the IT field. The variable of IT specialty is posited to moderate the impact of the key constructs on behavioral intention and behavior. These determinants and moderators will be used to extend the proposed research model.

Many scholars have stated that demographic variables impact the acceptance of software (Esposito et al. 2019; Venkatesh, 2003). The review of the literature highlights the gap

concerning the impact of the OSS characteristics on software acceptance. Also, these provide limited information on how the software acceptance differs among IT users concerning the OSS. IT knowledge makes users able to enhance and customize the software code with more quality based on their requirements, increasing their performance capacities, and allowing them to transition to any new OSS product with ease (Ghapanchi & Aurum, 2012; Kim & Chae, 2016). Hence, this study uses IT specialty as a moderator variable for some of the determinants in the model.

The relationships are described by a transformed model illustrated in Figure 4.

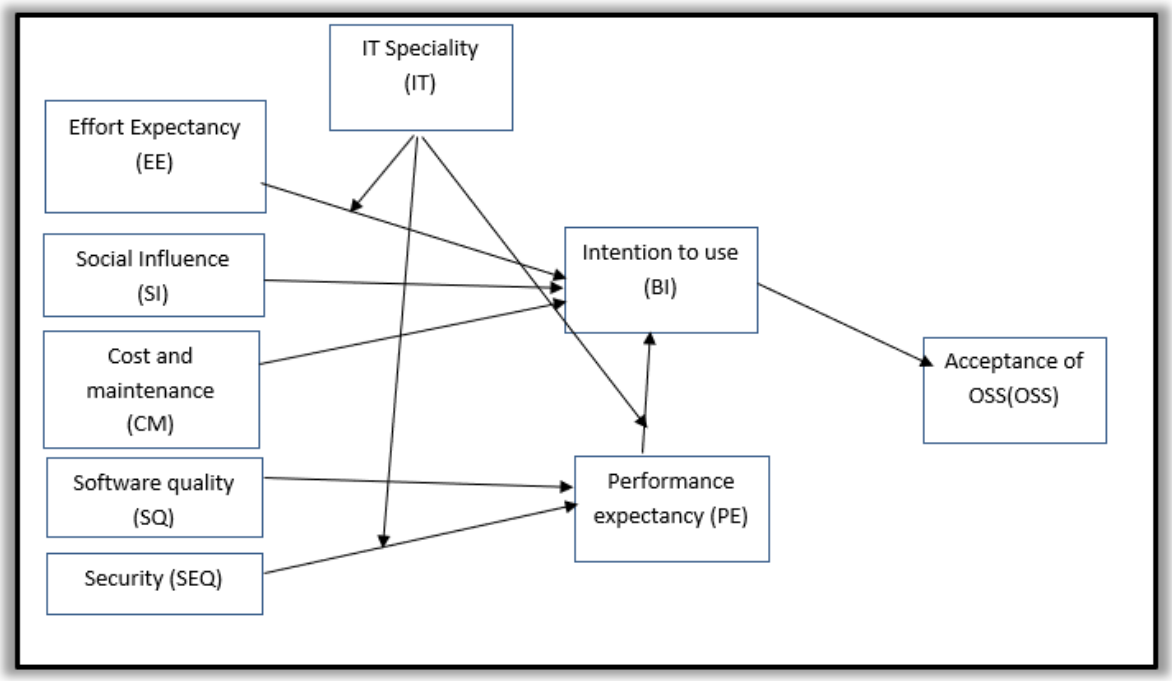


Figure 4 Modified UTAUT model

2.4. OSS

The Appendix **A2.1. OSS** presents the articles discussed in the below literature.

In the year 1985, the idea of the open-source emerged from Richard Stallman's Free Software Movement which promoted the free use and distribution of software against monopolies such as Microsoft and IBM (Li, Seering, Ramos, Yang, & Wallace, 2017), and it changed the traditional process of software project development. Linux operating system is an open-source product and is using with a mind-blowing number of 96%. The growth of OSS has increased and has been a significant competitor to traditional proprietary(Gallego, Bueno, Racero, & Noyes, 2015; Katsamakas & Xin, 2019). In recent days, the OSS projects are gaining interest among individuals and organizations. The term OSS is as an open innovative moment where experts develop software in a collaborative manner(Coelho & Valente, 2017; Kaur, Chahal, & Saini, 2020; Morgan & Finnegan, 2014). The source code of OSS software is published under a license where the copyright holder gives users permission to use, modify and redistribute for free of cost or at a charge (Gallego et al., 2015; Krogh & Hippel, 2006).

Most people might think that OSS is free software, but all of OSS is not free. Most software production firms distribute their software free of cost, yet they retain the sole patent rights of their codebase (Russo, 2016; Vasudeva, 2012). However, active developers to open source can produce innovative programming and share their program code completely for free of cost. As per the growing interest in OSS adoption, the existing literature review presented many advantages of OSS.
The OSS solutions are secured, highly reliable, and stable with high quality and the OSS programs are available at less cost or free of charge and users will get experts advice from a widespread online community (López et al., 2015; Morgan & Finnegan, 2014; Safadi, Chan, Dawes, Roper, & Faraj, 2015). But Safadi et al. (2015) argued that the development and the adoption of the OSS contributors and users had faced many difficulties regarding software features such as quality, security, and complexity. According to Bosu and Sultana (2019) and Feller & Fitzgerald (2002), software features and characteristics are essential for its acceptance. Therefore, the effect of OSS features deems a sophisticated research contribution.

The study is furthermore advanced because previous research attempts are focused on the motivation against OSS implementation and the firm's adoption of such software (Qu, Yang, & Wang, 2011; Schaarschmidt, Walsh, & von Kortzfleisch, 2015) and the contributor's motivation to participate in OSS moment (Carvalho, 2017; Huang, Ford, & Zimmermann, 2021; Lakhani & PaneÎa, 2016).

Therefore, to fill the gaps in literature the current research paper focuses on how individuals are motivated to choose OSS, what are the OSS factors influencing their intentions to use, and how their behavioral intentions are influencing to accept OSS.
Hence this research main question is

RQ1. What factors influence users in IT Professions to adopt OSS over other Types of software such as PS?
Also, the research finds the answer to the below question.
RQ1.8. What is the most popular OSS is using more by IT Professionals?

2.5. OSS VS PS

The Appendix **A2.2. OSS VS** PS presents the articles discussed below literature.

OSS has become the most amazing "growing" sensation of the entire IT environment. But a never-ending argument is whether the software community's innovations such as OSS are better rather than PS (Gerald, 2013; Harrer, Lenhard, & Wirtz, 2013; Singh et al., 2015). Although OSS and PS technologies have coexisted in the computer industry since the early days, the rivalry between these two modes of production has significantly increased with the Internet's rise in the mid-1990s. Examples include Linux vs Windows, Open Office vs Microsoft Office, Firefox vs. Safari, Google's Android vs Apple's iOS, and more recently, Apache and the MS Internet Server (Masanell & Llanes, 2015). Sacks(2015) stating that if there is no competition then firms provide less technologically savvy people. When there is competition community provides more latest intelligent techies to give competition to commercial product manufacturing. Zhu & Zhou(2012) discussed that PS having serious competition from this OSS, but PS is tempting customers by using the “Lock-in customer “ strategy i.e., changing the costs. On the other hand, Pinto, Steinmacher, Dias, & Gerosa, (2018) mentioned that many companies and individuals are switching from PS to OSS because of the source code quality, fewer costs, and more flexibility in source code.

According to Singh et al.(2015), many IT individuals around the world prefer to use PS software rather than OSS. Even though the OSS community has been growing massively in the last few years, there is still no clear response. Dhir & Dhir (2017) and Hill, Datta, & Weerdt (2017) stated that most of the IT people are using the traditional PS because of ease of use, commercial support, increase in software cost, ease of development facilities while switching to OSS increasing these days due to better software quality, security, free users support, and ease of software development process. Bamhdi(2021) and Odun-Ayo, Falade, & Samuel (2018) stated that even though there are many benefits of OSS it is highly required to monitor the security vulnerabilities during each phase as its code is distributed widely. The adoption of OSS is growing as there is a lot of cost savings. For example, OSS software such as Java and PHP are cheaper to implement and very compatible with to majority of operating systems when compared to ASP.NET, in the same way, ASP.NET is very faster and user-friendly when compared to OSS(Botwe & Davis, 2015).

Harrer et al. (2013) discussed that even though there is a vast growth in the OSS community still there is much a clear idea on the quality of OSS. Hence the researchers focused on the highly produced products such as middleware tools BPEL engine by comparing the tools made with both PS and OSS and their results concluded that PS is better than OSS. On other hand, Bamhdi(2021) argued that OSS has more quality than PS.

Technology got much bigger and more complicated than ever before because of advances in technology such as the Internet of things, ultra-large software, and users are demanding more powerful software. Hence, software complexity and quality become one of the major factors for choosing the right option. According to Nguyen-Duc(2017), OSS has greater quality than PS as the design of PS is more complex than OSS.

Even though many previous studies presenting the comparisons between PS and OSS, the researcher examines which type of software is a better option. This research will answer the below question.

RQ1.7. Is OSS product is better than PS?

2.6. Software Quality(SQ)

The Appendix **A2.3. SQ** presents the articles discussed below literature.

Study on the qualitative capabilities of software has traditionally been maintained under a mask within the enterprise which has been implemented or conducted by externals using narrow Blackbox technologies(Spinellis et al., 2009). This image has improved with the advent of open source applications by encouraging scholars to explore both the software components and the systems that develop them. This enables one to assess the output transparently, using assets such as the software source code, the related information that is contained in the version control system, the problem tracking archive, and the documentation. Especially OSS has a major economic impact and is used increasingly in mission-critical applications. This OSS aspect encourages individuals and companies to use OSS products with high SQ (Van Loon & Toshkov, 2015).
Each company is looking for very good infrastructure, consistent, testable, and retainable code, and supporting and maintaining software methodologies. SQ and standards play an important part in achieving them. Since OSS is open to the public, consistency would increase in three areas as Productivity, User satisfaction, and Service level. In addition, in terms of efficiency, OSS improves morale and performance. In comparison to closed-end sources, it enables quicker problem detection and error-free solution(Bahamdain, 2015).

To measure OSS SQ the characteristics are mainly classified into maintainability and usability(Adewumi, Misra, Omoregbe, Crawford, & Soto, 2016; Molnar, Neamtu, & Motogna, 2019). A study presented by Aberdour(2007), a comprehensive analysis of 100 OSS applications and found that program SQ was higher than expected when compared with PS. Also, Alenezi & Almustafa (2015) research supported the above claim and stated that software evolves provides new features that will improve the SQ.

The users and IT makers are attempting to choose OSS products as the SQ of products are high (Lee, Kim, & Gupta, 2009; Sarab & Rehman, 2014). But Wasserman et al. (2017) argue that although, IT decision-makers such as Project managers having good knowledge of traditional PS models, while choosing the software OSS providing them new challenges like regular releases, vendor support, and good SQ. In addition to that, Dong, Wu, & Zhang (2019) study found that there is limited research on OSS SQ in terms of code and developer quality communicating to the end-users.

Hence, this research concentrates on the SQ factor and finds which software is better between OSS and PS in terms of SQ. Also, examines SQ has any impact on their performance which in turn has any influence on their behavioral intentions to OSS adoption. So the research answer to below question.
RQ1.6. Which is more quality software between the OSS vs. PS?

2.7. Security(SEC)

The Appendix **A2.4. SEC** presents the articles discussed below literature.

OSS is now widely used by organizations of all sizes and many software developers and is more valuable for the companies that follow agile methodologies in their software implementation. However, consumer data protection and privacy SEC also have less importance in the search for agility and speed when they are seen as a time-consuming task that requires advanced staff, processes, and technologies(Rakesh Kumar & Goyal, 2020). Ajigini, Van Der Poll, & Kroeze (2014) discussed that user considering that the main benefit of using OSS is SEC other than cost because when any issue occurs in the code it is possible to open up the code package and modify it and redistribute it but if any problem occurs in the commercial software uses must wait for the vendors support(Ajigini et al., 2014). But Angermeir, Voggenreiter, Moyón, & Mendez(2021) argued that their study on 8243 enterprise-driven OSS CI pipelines SEC activities but their result showing that only 6.8% of projects have maintained the SEC activities by the maintainers as they are not considering safety measures. Also, there is an SEC threat by using OSS as there are millions of source codes is stored in repositories without scan and cause SEC weakness. Even though 96 % of commercial applications are using OSS components and 67 % of applications are using OSS by knowing these SEC vulnerabilities. The main reason to use OSS is in the average over the third of programming code is open source and to replace this code it is required for companies to invest development time and increase the number of developers, but it is not a viable solution.

Plate, Ponta, & Sabetta(2015) and Wen(2017) states that for any software development and usage, SEC is the critical factor and mostly community-based products such as OSS. Less secure OSS products have increased the risk of malware attacks, which weakens software usage. Alenezi & Javed (2016) found that almost all OSS projects having the same SEC issues which are due to lack of developer knowledge and hasty programming against SEC vulnerabilities. Domar Bolmstam & Hanifi (2020) has stated that if the OSS usage does not

provide the recommendations on SEC, then the users might miss the important SEC accepts which leads to severe SEC threat to the businesses, so this research has provided information and guidelines on the SEC of OSS usage. Also, Duan, Bijlani, Xu, Kim, & Lee (2017) stressing that despite the benefits of OSS, careless use of it might cause legal and security risks.
Sood, Shipra, & Soni (2016) discussed that a lot of applications developed on PS operating systems are less secure when compared to OSS, but the overall product is very secured as a dedicated team will develop, modify, and distribute under closed manner. On the other hand, OSS developed on operating system is very secure for example Linux (Silic & Back, 2016).

According to Silic & Back(2016)and Sood et al.(2016), the controversy over SEC of OSS and PS has remained underway and there are no clear conclusions yet from the past literature.
Hence, in this study, the researcher tries to fill the literature gap to find the answer for best-secured software products between OSS and PS. Also, the researcher will identify the impact of the SEC factor on their performance for the below question.
RQ1.5. Which is more secure software between the OSS vs. PS?

2.8. Cost and Maintenance(CM)

The Appendix **A2.5. CM** presents the articles discussed below literature.

The other most crucial factor that influences OSS is Software CM and based on this cost factor the adoption and use of OSS is improving drastically. The emergence of the OSS has helped people and companies to reduce their costs of IT functions (Ayala, Cruzes, Hauge, & Conradi, 2011; Walli, Gynn, & Rotz, 2005). Subsequently, the use of OSS increases, whether it is free or at a low cost. However, the OSS's practical application involves creating the required skills to upgrade, manage, customize, and meet the requirements' needs. Hence, the expenses of implementing the projects with OSS are the combination of cost of the licenses, customization, maintenance, and service fees (Ramanathan & Krishnan, 2015; Ven, Verelst, & Mannaert, 2008).
According to Adams, Kavanagh, Hassan, & German (2016), software engineering best practices are the code reuse whether it is closed or open, but the reuse of code needs to customize and integrate for useful but involves. Consequently, if the knowledge of software customization and maintenance is absent from the in-house expertise, then the adaptation of such software may be at risk. Besides, commercial software product firms have a quality advantage as they hire programmers to build software (Baranes, Vuong, & Mourad, 2020). Linåker, Munir, Wnuk, & Mols(2018) and Olson, Johansson, & Carvalho(2018) argue that firms also benefit from OSS as there is source code availability and customization options available. According to Kamau & Namuye (2012) research states that the IT decision-makers and users are known about the potential cost benefits of OSS, and many public and private companies are taken lead in adopting OSS. The reuse of code, supporting cost, ease of maintaining the cost of OSS product plays a vital role in OSS adoption (Paschali, Ampatzoglou, Bibi, Chatzigeorgiou, & Stamelos, 2017).

Shaikh (2016) states that, in most cases, IT professionals perceived that OSS products' CM is more comfortable than equivalent PS products, but Thankachan & Moore (2017) argues that OSS prices are low, but deployment costs are going beyond the initial purchase of the product which will be the barrier of adopting OSS.

To this end, it is essential to examine the open source costs of adopting such applications. Hence, the researcher examines the which is cheapest and less maintenance product between

OSS and PS and does this CM factor influence the user's behavioral intentions to choose OSS by answering the below question.
RQ1.4. Is adopting OSS lead to monetary problems for IT Professionals?

2.9. Social Influence(SI)

The Appendix **A2.6. SI** presents the articles discussed below literature.

OSS projects are diverse social-interaction and technological environments projects. Venkatesh et al. (2003) stated that OSS research has recognized that SI is a significant factor in adopting OSS. Social impact refers to interpreting other people's views by individuals' opinions, recommendations, main colleagues at the workplace (Singh & Phelps, 2013). Many researchers such as Bhatt, Ahmad, & Roomi (2016) and Carillo, Huff, & Chawner (2017) are mainly focusing on SI on contributing to OSS but only a few papers discussed user's behavior changes due to SI.

Martin (2014) found that efforts for promoting the use of OSS having a positive impact on the adoption. Zuiderwijk, Janssen, & Dwivedi (2015) discussed that the adoption and use of OSS often involve social considerations such as usage behaviors, and influence and interaction between users. Choi & Yi(2015) and Li (2018) also stated that public awareness information on a social platform such as Open Hub, GitHub, and Source Forge is motivating users to adopt OSS. Commercial firms are also showing interest to implement a social collaborative approach in their projects(Kalliamvakou, Damian, Blincoe, Singer, & German, 2015).

Marsan & Paré (2013) research saying that usage of OSS increasing by the OSS blogs, wiki, OSS-related information on newspapers, and word of mouth. So, it is very important to know how IT professional users' intentions influence by social factors such as organizational and community-related influence. Thus, the researcher develops the below question about what social factors are influences and motivates the individual's behavioral intentions to accept OSS.

RQ1.2. How do IT professionals influenced by Individuals or organizations in adopting OSS?

2.10. Performance Expectancy(PE)

The Appendix **A2.7. PE** presents the articles discussed below literature.

According to Venkatesh et al. (2003), The extent to which a person considers that the software system helps them perform their tasks efficiently and improve their productivity is known as PE. Alarcon et al.(2020) said that people could adopt any software systems only if they believe it increases their productivity, also states that the key attributes identified when choosing OSS are user compliance in the requirements, extensibility, and ease of upgrade that are all potential metrics of performance.

According to Cai & Zhu (2016) and Ghapanchi (2015) OSS project developer experience, user participation, SQ are the main factors influencing the user's performance in using the product. Also, OSS product technical and functional capabilities are having a significant influence on users' performance(Ghapanchi & Aurum, 2012; Kim & Chae, 2016). For example, the OSS tool Apache Spark has many scalable features which are used to increase performance (Armbrust et al., 2015).

Harrer et al.(2013) performed a comparison between OSS and PS on Service-oriented architecture BPEL engines in their research and found that PS software systems are performed

more than OSS. McWilliams (2013) and Wang, Shih, & Carroll (2015) pointing that the more the usage of OSS products the more the chance of finding bugs leads to project performance. The customizable and innovative OSS products improve performance enhancement in individuals, particularly in the IT people who have creative skills and development knowledge in an integrated development environment.

Hence, it is necessary to detect what factors of OSS impacting the user's performance and how it is influencing their intentions to use more OSS products. Hence the research sub-question is RQ1.1. How does OSS adoption affect the IT professional's performance?

2.11. Effort Expectancy(EE)

The Appendix **A2.8. EE** presents the articles discussed below literature.

According to Venkatesh et al. (2003), The degree to which a person considers that the software system is effortless to use is known as effort expectancy. This factor enables users to use any software easily by using its documentation and support from the community(Mtebe & Raisamo, 2014). Additionally, the feature of OSS source code availability, user guides help users to modify and reusing it as per their requirements (Feller & Fitzgerald, 2002).

Alrawashdeh et al.(2020), Henrico et al.(2021) and Zuiderwijk et al.(2015) discussed that easy-to-use, learning, guidelines, training strategies are influencing user behavior on adopting OSS. Li, Tan, Xu, & Teo(2011) states that individuals who adopting the OSS have intrinsic motivations such as satisfaction in learning and use of the software. Pinto, Figueira Filho, Steinmacher, & Gerosa (2017) discussed that easy learning of tools increases the professional's capabilities and technical skills. Raza, Capretz, & Ahmed (2012) states that many OSS technologies provided users with source code along with documentation which helps professionals to use the product extensively. Terry, Kay, & Lafreniere (2010) the research interviewed 12 developers and found from their feedback that OSS is easily learnable and communicating with the users improving usability. But Domar Bolmstam (2020) argued that usage of OSS lacking quality security guidelines which leads users to miss important steps in their implementations that cause the extra effort to rectify issues. Thus, it is very important to investigate the below question know does EE influences user's behavioral intentions to use OSS.
RQ1.3. Is OSS easy to learn and adopt by IT Professionals?

2.12. Behavioral Intentions (BI)

The Appendix **A2.9. BI** presents the articles discussed below literature.

Based on the fundamental theory of software system acceptance, BI is the motivation factor that influences the behavior of users to perform certain actions (Venkatesh, Morris, Davis, & Davis, 2003). According to Gallego et al.(2015) and Silic, Barlow, & Back (2018), the existing literature has tried to find the factors which influence the user's behavior to accept the technology and the factors such as motivation from organisation top management, social pressure, users trust, technology, performance, and prior user experience and many more factors.

The existing literature shows that previous researchers attempted to find the motivational factors of Organizations and contributors to adopt OSS tools and technologies. And there is a limited number of studies on OSS user’s acceptance. Therefore, the researcher aims to focus

on this gap and try to identify the impact of the above-discussed OSS characteristics on IT professionals' intentions to accept OSS.

2.13. Conclusion

The adoption of OSS in the IT profession depends on key factors which influence the BI of users to choose the software. This paper presented a PRISMA literature review and found 90 related articles in the literature. In this section, the comparison of OSS and PS is clearly explained. A brief description of OSS adoption factors is portrayed clearly, and the literature gap is explained for every factor clearly. The next chapter presents the research questions, hypotheses, and research methodology.

3. Research Methodology

3.1. Introduction

The research design is presented in this chapter. The discussion depicts the general research design as well as the research technique, which is followed by analysis. Section 3.2 outlines the study topic and hypothesis. Section 3.3 introduces the research strategy, which includes a discussion of the theoretical background as well as how the variables group and interacts with one another. The research instrument was mentioned in Section 3.4. Section 3.5 describes the sampling process. Sections 3.6, 3.7, and 3.8 exhibits the data collection method, primary data summary, and data analysis method, respectively. The conclusion is presented in Section 3.9 of this chapter.

3.2. Research Question

One of the most commonly researched issues in the literature is software system acceptance. Several studies have attempted to examine software system adoption from various perspectives. But few studies have looked into the acceptance and use of OSS by individuals. Hence, this research's primary focus is to understand the factors that influence OSS adoption in the IT profession. Therefore, the scholar presents the below critical research question, and its sub-questions aim to understand the results of this research.

Main Research Question:
RQ1. What factors influence users in IT Professions to adopt OSS over other Types of software such as PS?
And below are the sub-questions for the research.

Sub Questions:
RQ1.1. How does OSS adoption affect the IT professional's performance?
RQ1.2. How do IT professionals influenced by Individuals or organizations in adopting OSS?
RQ1.3. Is OSS easy to learn and adopt by IT Professionals?
RQ1.4. Is adopting OSS lead to monetary problems for IT Professionals?
RQ1.5. Which is more secure software between the OSS vs. PS?
RQ1.6. Which is more quality software between the OSS vs. PS?
RQ1.7. Is OSS product is better than PS?
RQ1.8. What is the most popular OSS is using more by IT Professionals?

3.3. Research Design and Hypotheses

This project research design uses the post-positivism based on (Creswell & Creswell, 2019) philosophy worldview as shown in Figure 5 which is used to determine the effect or influence outcome. Based on this view the Quantitative research approach is used to find the relation between the factors and user intention to adopt OSS. This will be achieved by using an online survey process and the collected statistically significant results will be measured by using different data analysis tests to find the answers for the research questions.

The research design is shown in below Figure 5.

Postpositivism	Constructivism
• Determination • Reductionism • Empirical observation and measurement • Theory verification	• Understanding • Multiple participant meanings • Social and historical construction • Theory generation
Transformative	**Pragmatism**
• Political • Power and justice oriented • Collaborative • Change-oriented	• Consequences of actions • Problem-centered • Pluralistic • Real-world practice oriented

Figure 5 Philosophy worldview (Research design,(Creswell & Creswell, 2019))

Many studies have tried to define and determine the elements affecting the acceptance of software advancements among employees and companies from a different perspective. For example, Cheng, Chen, & Yen(2015) and Park & Kim(2013) used the TAM model, and Baptista & Oliveira(2015) and García et al.(2020) used the UTAUT model. These studies used factors such as satisfaction, culture, motivation, and usability and implemented a model to identify those factors' impact on system acceptance. But surprisingly there are only a few studies on OSS adaptability. For instance, Alrawashdeh et al.(2020) and Ndekwa, Nfuka, & John(2020) used UTAUT, and Gwebu & Wang(2011) studies used the TAM framework to find the influence factors in the adoption of OSS. UTAUT is the latest among those frameworks to find the user acceptance of OSS systems(Venkatesh et al., 2003). This research's critical innovation proposes a theoretical model for the user acceptance of open source applications by studying the software characteristics and a moderator "IT specialty" as a connective variable between those factors and the adoption of OSS. The constructs of the UTAUT framework have combined IT specialty as a moderator and features. Factors that could affect OSS acceptance were incorporated into the conceptual framework: PE, EE, SI, CM, software SEC, and SQ of software. Thus, this study considering UTAUT and relate the hypotheses listed below to the corresponding variables.

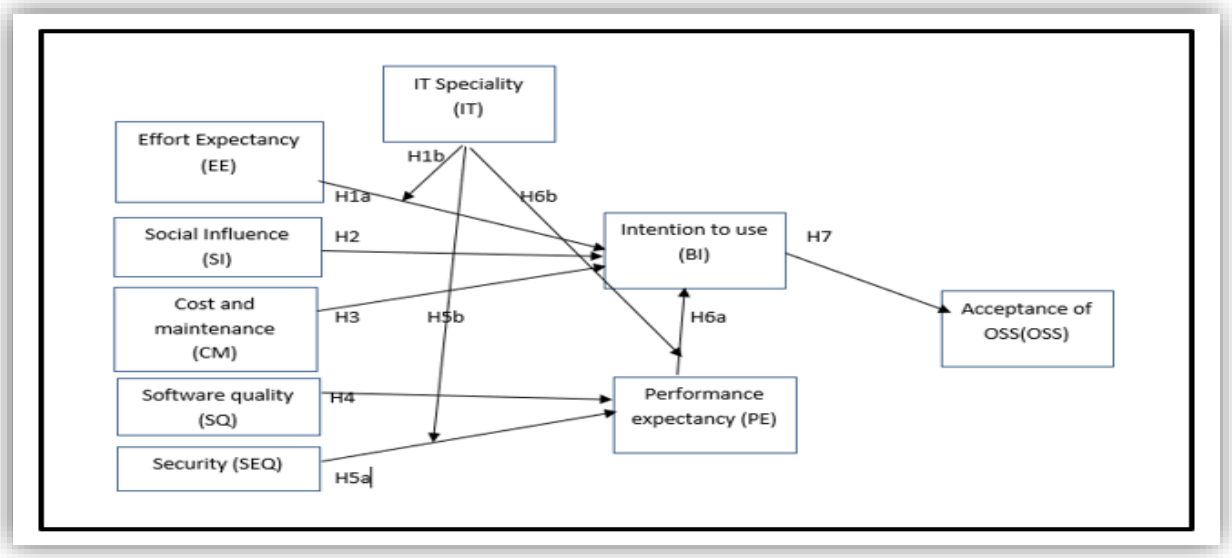


Figure 6 Research model and Hypotheses

As shown in above Figure 6, the conceptual framework integrated 6 factors that could affect the OSS acceptance, namely: EE, PE, SI, CM, SQ, and SEC. Some of these factors are varied by a moderator variable IT Speciality. Based on this framework the research Hypothesis is defined as below.

3.3.1. EE

According to Venkatesh et al.2003, the increased acceptance of software is depending on its ease of use. Additionally, its reusability, especially in the IT Speciality, makes it possible to redesign code based on new requirements. Thus, the hypotheses are formulated as below.

H1a: EE has a positive impact on the intention to use OSS.
H1b: The connection between EE and BI will be moderate by IT specialty, and this relationship will be positive among IT professionals.

3.3.2. SI

There is strong evidence from Choi & Yi(2015) and Li(2018) that the influence of friends and colleagues at the workplace and the online platform such as GitHub influences the perception of individuals regarding accepting the software product. Hence, the hypothesis is formulated as below.

H2: SI has a positive impact on the intention to use OSS.

3.3.3. CM

A cost is a comparison between the perceived benefits of using a software system and the monetary cost involved in its utilization. When the software product costs are less so the acceptance is more(Venkatesh, Morris, Davis, & Davis, 2003). Therefore, the hypotheses are formulated as below

H3: CM has a positive impact on the intention to use OSS.

3.3.4. SQ

The software products are realized by the quality of its services. Many scholars indicated that software quality is one of the common variables that influence the acceptance of software systems(Adewumi, Misra, Omoregbe, Crawford, & Soto, 2016; Molnar, Neamtu, & Motogna, 2019). Since the end-users generally accept and use software that resulted in high performance (Venkatesh et al. 2003). Thus, the following hypothesis has been proposed

H4: There is a significant relationship between OSS's SQ and the PE to use OSS.

3.3.5. SEC

According to Alenezi & Javed (2016), the OSS's source code makes it more vulnerable to software hackers and malware. Nevertheless, its uptake within firms remains high as a result of the IT specialist's ability to modify and enhance the OSS code. Many studies including Plate, Ponta, and Sabetta (2015) and Wen(2017), have examined the role of perceived security in software product acceptance. Hence, the hypotheses are formulated as follows.

H5a: Software SEC will have a positive impact on the PE of OSS.
H5b: IT specialty moderates the relationship between software SEC and PE.

3.3.6. PE

According to Venkatesh et al. 2003, individuals utilize computing systems only if they are confident that they will improve their outcomes. Utilizing OSS to measure enhancements is helpful for improved and customizable software. This is especially true for individuals who

possess effective IT Specialty skills and knowledge. OSS acceptance is likely influenced by performance expectations. Thus, two hypotheses have been formulated. Thus, two hypotheses have been formulated.

H6a: The PE has a positive impact on the BI to use OSS
H6b: The relationship between BI and PE to be stronger among the IT people, and IT specialty moderates this relationship.

3.3.7. BI

According to the underlying theories of acceptance software systems, user behavior is influenced by their willingness to perform a certain action (Venkatesh et al., 2003). Also, it is seen as an indication of the extent to which software systems are used (Šumak et al. 2011; Zhang et al. 2008). Thus, this study has proposed the following hypothesis.

H7: The relationship between the actual use of OSS and a user's BI is significant.

To prove the above hypotheses an online survey mechanism is used to get data quantitatively. The survey is constructed using Qualtrics with 28 sets of questions.

Below Table 3shows the relation between the literature review, hypotheses, research questions.

Table 3 Creating a link between the hypothesis and the main research question and the related literature and survey questions

Research Question	Literature	Survey Questions	Hypothesis	Relation
RQ1.1. How does OSS adoption affect the IT professional's performance?	2.9. PE	S12,S13,S21,S24	H6a	PE->BI
RQ1.2. How do IT professionals influenced by Individuals or organizations in adopting OSS?	2.8. SI	S11,S22	H2	SI->BI
RQ1.3. Is OSS easy to learn and adopt by IT Professionals?	2.10. EE	S14,S19,S23	H1a	EE->BI
RQ1.4. Is adopting OSS lead to monetary problems for IT Professionals?	2.7. CM	S16,S17	H3	CM-> BI
RQ1.5. Which is more secure software between the OSS vs. PS?	2.6. SEC	S15	H5a	SEC->PE
RQ1.6. Which is more quality software between the OSS vs. PS software?	2.5. SQ	S18,S20	H4	SQ->PE
RQ1.7. Is OSS product is better than PS?	2.4. OSS VS PS	S14,S15,S16,S17,S18,S19,S20,S21	H7	BI->OSS
RQ1.8. What is the most popular OSS is using more by IT Professionals?	2.3. OSS	S2,S7,S8,S9,S25,S27	H7	BI->OSS

RQ1. What factors influence users in IT Professions to adopt OSS over other Types of software such as PS?	2.11. BI	S3,S10.S26,S28	H7	BI->OSS

3.4. Research Instrument

Researchers have utilized Qualtrics as an online survey tool (Tharp & Landrum, 2017) for the construction of the 28 survey questionnaires. Then the questionnaire is distributed to Indian IT professionals using the popular social media application WhatsApp. A brief overview of data sampling, gathering, and analysis techniques are presented in the following sections.

3.5. Sampling Method

Sampling attempts to depreciate the expense and workload of the overall target population that will possibly be surveyed. A sample is related to the collection of evidence from a set of people. In this instance, a survey sampling summarizes collecting a selection of factors from the targeted population to organize a survey. The number of IT professionals in India is 4.36 million (Ramaswamy,2020; IBEF, 2021; Statista, 2021). Hence, the target population to carry out this research would be 4.36 million IT professionals from India and above 18 years of age. Convenience sampling reflects the non-probability sampling process that will be used for this study. The size of the sample consists of three variables. These primary variables decide the sample size based on the diversity of the population, the significance of the error of acceptance, and the confidence interval. As a result, with a population size of 4.36 million, a confidence interval of 5, and a confidence level of 95%, the final sample size is 384 as determined by an online sample size calculator (SurveySystems, 2021). The following sample size is displayed below in Figure 7.

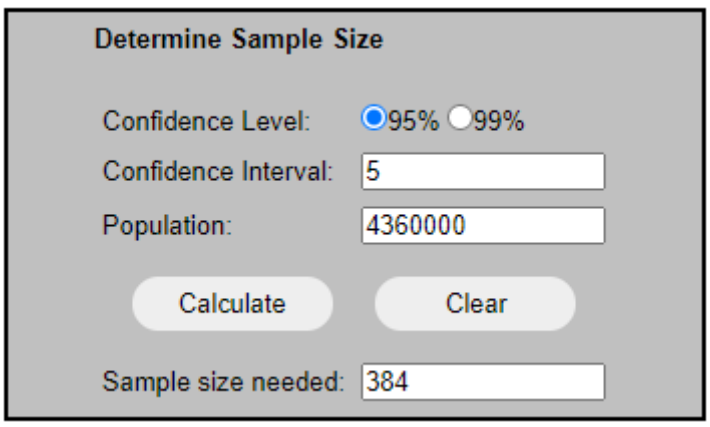


Figure 7 Survey Sample Size determination

After achieving responses of 558 more which is more than the target number of 384 the researcher ended the survey.

3.6. Data Gathering Method

The poll was built using the online survey software tool Qualtrics, and the survey link was sent with participants in India via the social media platform WhatsApp, where the data for this study

was gathered. For ethical approval, the researcher designed a questionnaire based on a literature review in English. Only with the Ethics Committee's clearance, survey constructed on Qualtrics (see the survey questionnaire) in Appendix **A3. Survey Questions**. The Link then is shared with five people for testing and feedback. The completed questionnaire link was then distributed to friends and co-workers. and the respondents have access to this URL. During this time, all participants can access the survey and respond to the survey questions.
The data collection process began on March 18, 2021, and finished on June 1, 2021. Following the completion of the survey, the researcher reviewed the data available on the tool from the back end and screened for legitimate data for further analysis. The data is saved on a computer hard drive in SPSS style.

3.7. Primary Data Description

Qualtrics surveys garnered a total of 403 participants. There were 558 total participants in this poll, with 403 completing the survey form. For the final study, however, 403 surveys were considered. It takes 10 minutes to complete the survey. A smartphone survey was completed by 91 percent of participants. Others used computers to do it.

3.8. Data Analysis Method

The researcher used the data analysis strategy shown in Figure 8 to gain a systematic comprehension of quantitative answers.

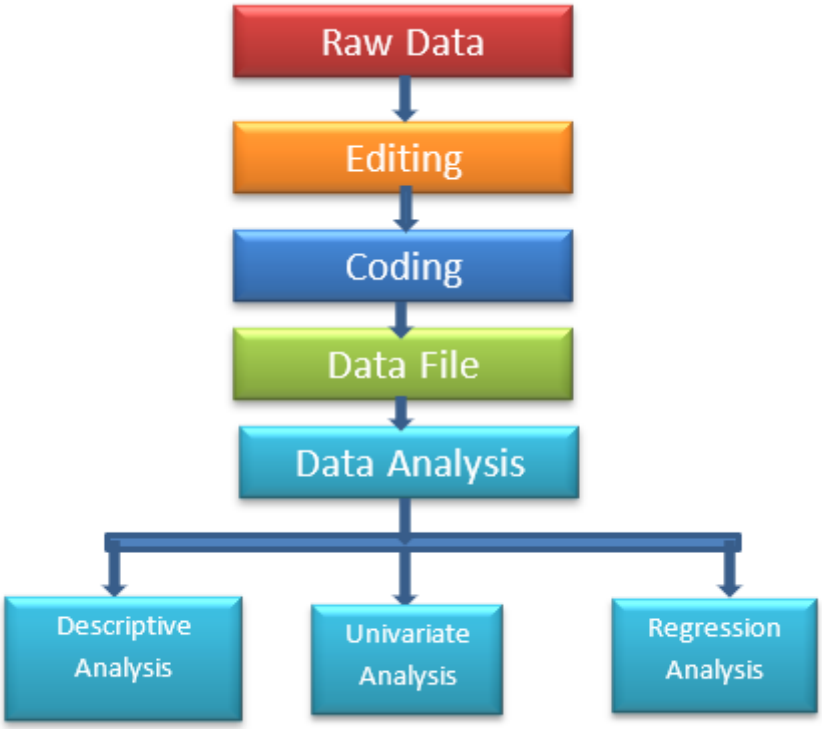


Figure 8 Data analysis method Overview

3.8.1. Raw data

After receiving 558 replies to the survey's 28 questions, the raw data was exported from Qualtrics into an SPSS file.

3.8.2. Editing

Irrelevant data was removed by editing. Two columns were removed: location and response time. Because it is an online survey, a few respondents may skip the questions, so the researcher coded all missing and unanswered questions with "0." A few rows were removed since the survey responses had a response rate of less than 10%. Table 4 provides detailed information about the data records.

Table 4 Data File Information

Total recorded Responses	Filtered Responses based on IT and age above 18	Valid responses after cleaning	100 % Completed Responses	Below 100% Competed for responses	Deleted responses with below 10% Progress
558	104	403	382	21	51

3.8.3. Coding

As the third step of data analysis, the researcher wrote code to make the data more software friendly. The researcher employed numeric coding for the fields in the variable view after entering the raw data into SPSS software, which clarifies the data analysis results. Appendix **A4. Coding for the Survey Questions Answers** depicts the coding procedure

The researcher additionally coded the label column in SPSS variable view, which is shown in Appendix **A5. Survey Question and Labels**. For the ease of viewing the tables and figures in Chapter 4, a few words of summary have been added following the survey question number.

3.8.4. Cronbach's alpha

Bland & Altman(1997) discussing that Cronbach's alpha is a prominent metric for determining the dependability of survey items. The theoretical value of alpha ranges from 0 to 1 (Leontitsis & Pagge, 2007). Generally, a result greater than 0.70 indicates that the items have reasonably high internal consistency (UCLA, 2016).

3.8.5. Descriptive Analysis

Table 5 shows a descriptive analysis of variables. Information was acquired in tabular form, which aids in determining how frequently each response happens (Zikmund et al., 2013). Bar-Charts were used to visualize the data for this investigation. The descriptive analysis results are reported in Chapter 4. Inferences about the characteristics of the sample's interests could be present through descriptive statistical analysis(Zikmund et al., 2013).

Table 5 Descriptive analysis between different variables to prove the Hypothesis

Research Question	Literature	Survey Questions	Hypothesis
RQ1.1	PE	S12, S13, S21	H6a
RQ1.2	SI	S11, S22	H2
RQ1.3	EE	S14, S23	H1a
RQ1.4	CM	S16, S17	H3

RQ1.5	SEC	S15	H5a
RQ1.6	SQ	S18, S19, S20	H4
RQ1.7	OSS VS PS	S14, S15, S16, S17, S18, S19, S20, S21	H7
RQ1.8	OSS	S2, S7, S8, S9, S25, S27	H7
RQ	BI	S10, S26, S28	H7

3.8.6. Univariate Analysis: Chi-square

The Chi-square test is used to determine the overall independence of categorical variables (Zikmund et al., 2013). As a result, the Chi-square test was used for univariate analysis by the scholar. There are 28 questions in this survey. SQ1 to SQ6 are demographic factors, while SQ7-SQ28 are dependent variables. The Chi-square can assist in determining the correlation between the various categories. The survey data were imported into SPSS by the researcher to determine the link between moderating variables and specific survey items. Table 6 shows how the hypothesis for each test was developed.

Table 6 Chi-square test between different variables to prove the Hypothesis

Relationship	Chi-square test between Survey Questions		Hypothesis
PE->BI	S12,S13,S21,S24	S3,S10,S26,S28	H6a: H0: PE has no impact on the intention to use OSS H1: PE has a positive impact on the intention to use OSS
SI->BI	S11,S22	S3,S10.S26,S28	H2: H0:SI has no impact on the intention to use OSS H1:SI has a positive impact on the intention to use OSS
EE->BI	S14,S19,S23	S3,S10.S26,S28	H1a: H0: EE has no impact on the intention to use OSS. H1: EE has a positive impact on the intention to use OSS.
CM-> BI	S16,S17	S3,S10.S26,S28	H3: H0: CM has no impact on the intention to use OSS. H1: CM has a positive impact on the intention to use OSS.
SEC->PE	S15	S12,S13,S21,S24	H5a: H0: SEC will have no impact on the PE of OSS. H1: SEC will have a positive impact on the PE of OSS.
SQ->PE	S18,S20	S12,S13,S21,S24	H4: H0:There is no significant relationship between OSS's SQ and BI to use OSS.

			H1:There is a significant relationship between OSS's SQ and BI to use OSS.
BI->OSS	S3,S10.S26, S28	S14,S15,S16,S17,S18,S19,S20, S21,S2,S7,S8,S9,S25,S27	H7: H0:The relationship between the actual use of OSS and a user's BI is not significant. H1:The relationship between the actual use of OSS and a user's BI is significant.

3.8.7. Regression Testing: Linear

The researcher used Linear Regression testing to find whether the relation between two variables depends (is moderated by) on the value of the third variable. In this study researcher used IT Speciality as a moderator variable. Below is Table 7 showing the Hypothesis for the regression test.

Table 7 Hypothesis list for Regression test

Regression test for Moderator Analysis				
Relationship				Hypothesis
	Independent	Dependent	Moderator(IT Speciality)	
EE->BI	S14,S19,S23	S10,S26,S28	S6	H1b: H0: The connection between EE and BI not moderated by IT specialty H1:The connection between EE and BI is moderated by IT specialty
SEC->PE	S15	S12,S13,S21,S24	S6	H5b: H0: The connection between SEC and PE not moderated by IT specialty H1: The connection between SEC and PE is moderated by IT specialty
PE->BI	S12,S13,S21,S24	S3,S10.S26,S28	S6	H6b: H0: The connection between PE and BI not moderated by IT specialty H1: The connection between PE and BI is moderated by IT specialty

3.9. Conclusion

This section detailed the methodology of this research as well as the collecting of qualitative and quantitative data for the analysis. This study was quantitative. To present variables and hypotheses together, the researcher employed a modified UTAUT model. In this study, 558 people completed the online survey, outnumbering the sample size of 385. The data analysis considers 403 valid responses. Using SPSS software, descriptive, univariate, and bivariate analysis methodologies would be used to analyze the data. This study had some drawbacks, such as a leak of formation, a time phase, and convenience sampling. Furthermore, every test technique has inherent limits. In Chapter 4, the results of the survey data analysis to evaluate the hypothesis are reported.

4. Results and Discussion

4.1. Introduction

The researcher gave the results of Cronbach's alpha, descriptive analysis, Chi-square test, and Regression test in this chapter. The raw data is used in SPSS after it has been edited, filtered, and coded, as detailed in Chapter 3.7. The reliability test utilizing Cronbach's alpha is presented by the investigator in Chapter 4.2.1. In chapter 4.2.2, the scholar used bar charts to evaluate descriptive analyses of data. The findings of the Chi-square test, which is a Univariate analysis obtained from SPSS and presented in tabular form, are discussed in Chapter 4.2.3. Using SPSS, each table attempted to identify a relationship between two categorical variables and evaluated the hypothesis developed at the start of the test. The results have been accompanied by an explanation. The following section, Chapter 4.2.3, discusses the results of the Regression, a Linear analysis that employs tabular charts. This section also includes an illustration of the outcome. Finally, Chapter 4 analyzes the findings of descriptive, univariate, and linear statistical tests performed with SPSS software, as well as a detailed interpretation of the results.

4.2. Data Analysis

This section presents the data analysis of this research.

4.2.1 Cronbach's alpha

The survey's reliability is determined using Cronbach's alpha analysis. Cronbach's Alpha is a measure of how well a set of variables is linked. It is important to note that high alpha values do not always indicate that the measure is one-dimensional. 16 survey questions were tested in this study.

Table 8 Participants for Cronbach's Alpha

Case Processing Summary		
	N	%

Cases	Valid	403	100
	Excludeda	0	0
	Total	403	100
a. Listwise deletion based on all variables in the procedure.			

Table 8 shows that the total number of participants is 403

Table 9 Cronbach's alpha for this survey result

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.966	0.966	16

Table 9 shows that Cronbach's Alpha for all 16 questionnaires is 0.966, indicating that the items have relatively high internal consistency (above 0.70).

The Cronbach's Alpha value is 0.966, indicating that the model has excellent reliability, which is consistent with the prior literature assessment, which says that if the alpha value is greater than.85, the dependability is excellent (Bonett & Wright, 2015; Santos, 1999).

4.2.2 Descriptive analysis

A descriptive analysis is a quantitative summary statistic that illustrates data aspects. A Frequency table is used by the researcher to construct a descriptive analysis for each survey item. Bar charts were created using data from the frequency distribution tables to represent the response statistics for each survey question. The frequency tables and bar charts for each question were used to interpret the data.

4.2.2.1. Demographic Characteristics

S1:

Table 10 Number of participants responded with IT specialty and age above 18

S1 IT Pro & Age>18					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	403	100.0	100.0	100.0

As per above Table 10 shows that 403 valid participants responded to this survey with IT as a specialty and age above 18.

Table 11 Description of respondents for S1 by different Gender groups

S1 IT Pro & Age>18 * S3 Gender Crosstabulation								
			S3 Gender					
			Male	Female	Others	Prefer not to say	NotAnswered	Total
S1 IT Pro & Age>18	Yes	Count	220	111	4	9	59	403
Total		Count	220	111	4	9	59	403
		% of Total	54.6%	27.5%	1.0%	2.2%	14.6%	100.0%

Table 11 showing that the IT participants for this survey are 220 male and 111 Females, 4 other participants, 9 participants who have not responded to their Gender. Therefore, it can be said that females and males have statistical meaning in gender groups in this survey and males participated in this survey more than females (27.1% higher).

Figure 9 Bar graph for showing the frequency of respondents for S1 with different Gender groups

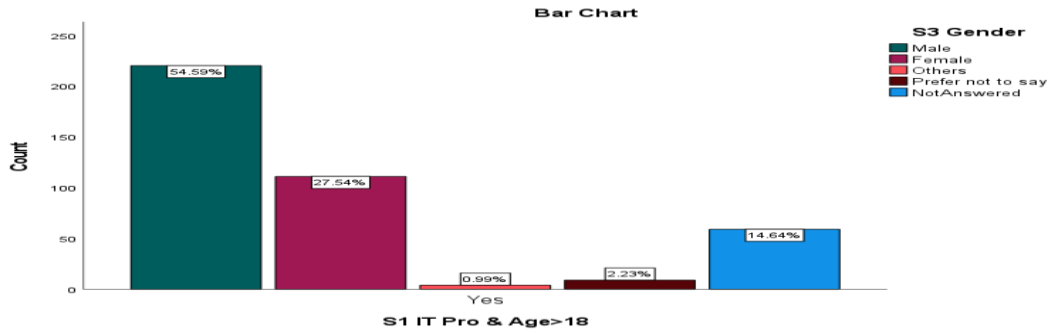


Figure 9 shows that males are the highest IT participants in this survey with 54.6% when compared to females whose participant percentage is 27.5% only. There is 1.0 % of other gender participation and 2.2% prefer not to reveal their gender. 14.% of participants responded but were not interested to respond to the question S3 Gender.

S2:

Table 12 Frequencies of participants who familiar with OSS

S2 Familiar with OSS?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	345	85.6	85.6	85.6
	No	58	14.4	14.4	100.0
	Total	403	100.0	100.0	

Table 12 shows that out of 403 valid IT participants 345 people with 85.6% are aware of OSS and only 58 participants with 14.4% do not know OSS. So, this states that the survey is statistically significant that the majority of the IT participants know the OSS software type.

Table 13 Description of respondents for S2 by different Gender groups

S2 Familiar with OSS? * S3 Gender Crosstabulation								
			S3 Gender					
			Male	Female	Others	Prefer not to say	NotAnswered	Total
S2 Familiar with OSS?	Yes	Count	220	111	4	9	1	345
		% of Total	54.6%	27.5%	1.0%	2.2%	0.2%	85.6%
	No	Count	0	0	0	0	58	58
		% of Total	0.0%	0.0%	0.0%	0.0%	14.4%	14.4%
Total		Count	220	111	4	9	59	403
		% of Total	54.6%	27.5%	1.0%	2.2%	14.6%	100.0%

Table 13 shows that 220 males and 111 Female, 4 other participants know OSS, 9 participants who are familiar with OSS do not want to reveal their gender and there are 59 participants not answered for the gender in that 58 people do not know OSS and 1 person knows OSS.

Figure 10 Bar graph for showing the frequency of respondents for S2 with different Gender groups

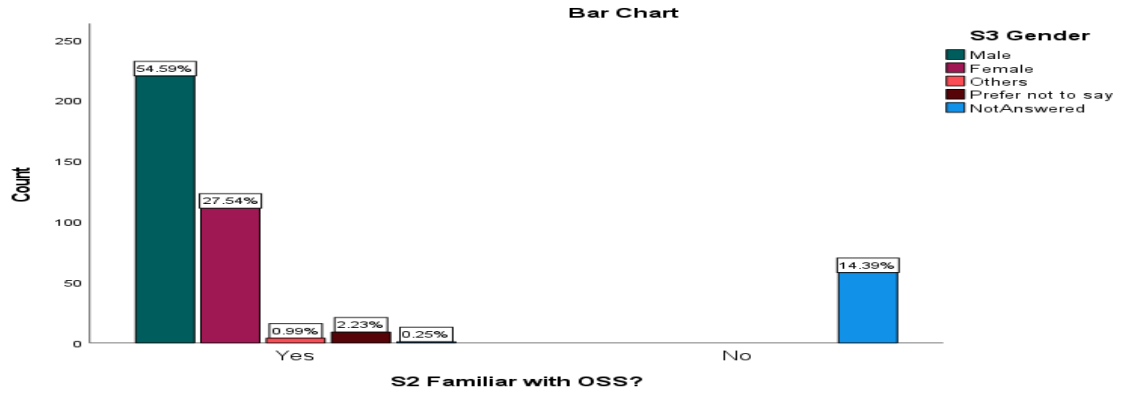


Figure 10 shows that 54.6% male,27.5% Female, 1%, 2.2 % prefer not to say their gender, and 0.2 % of No respondents to gender are known about OSS. 14.4% of people who are not responded for their gender also do not know what OSS is.

S3

Table 14 Frequencies of participants by their Gender

S3 Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	220	54.6	54.6	69.2
	Female	111	27.5	27.5	96.8
	Others	4	1.0	1.0	97.8
	Prefer not to say	9	2.2	2.2	100.0
	NotAnswered	59	14.6	14.6	14.6
	Total	403	100.0	100.0	

Table 14 showing that 220 males are the highest participants in this survey with 54.6% when compared to 111 female participants whose percentage is 27.5% only. There 4 other gender participation and 9 people are preferring not to reveal their gender. 59 IT participants responded to the survey but were not interested to respond to the question S3 Gender.

S4

Table 15 Frequencies of participants for their working organizations employee count

S4 Total Employee Count in the Organisation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-50	95	23.6	23.6	40.0
	51-100	71	17.6	17.6	57.6
	101-500	51	12.7	12.7	70.2
	501-1000	27	6.7	6.7	76.9
	1000+	93	23.1	23.1	100.0
	NotAnswered	66	16.4	16.4	16.4
	Total	403	100.0	100.0	

Table 15 presenting that the small organization with employees count1-50 are the top respondents of this survey having 95 responses with 23.6%. The next participation group is from the big organization (1000+) with 93responses (23.1%). The next level of participation is 71 responses from 51-100, 51 responses from501-1000, and 27 responses from501-1000 employee count organisations.66 participants i.e. 16.4% are not interested to respond for their organization level.

Table 16 Frequencies of respondents from different levels of Organizations

S4 Total Employee Count in the Organisation * S2 Familiar with OSS? Crosstabulation				
Count				
		S2 Familiar with OSS?		
		Yes	No	Total
S4 Total Employee Count in the Organisation	1-50	95	0	95
	51-100	71	0	71
	101-500	51	0	51
	501-1000	27	0	27
	1000+	93	0	93
	NotAnswered	8	58	66
Total		345	58	403

Table 16 shows that the participants from the small (1-50) and big corporations (1000+) know OSS with 23.57% and 23.08% respectively and are very close. 58 (14.39%) respondents who do not want to state their organization does not know about OSS and only 8 respondents know OSS from this group. Remaining participants who in 51-100, 101-500, and 501-1000 are known about OSS with 17.62%,12.66%, and 6,70% respectively. Hence, it is concluding that small (1-50) and big (1000+) organization employees are statistically significant for this survey and is influencing IT professional to use OSS in their work.

Figure 11 Bar chart for Frequencies of respondents from different levels of Organizations

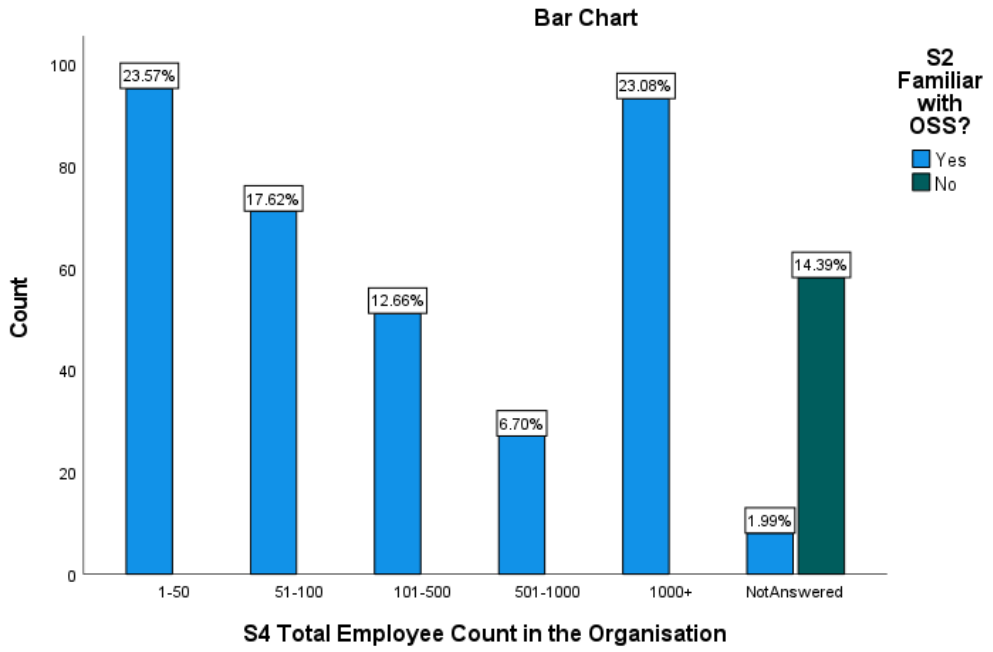


Figure 11 representing the graphical view of the data presented in Table 16.

S5

Table 17 Frequencies of respondents on their Job role

S5 Current Job Role					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Software Engineer	128	31.8	31.8	47.9
	Software Developer	61	15.1	15.1	63.0
	Testing Engineer	27	6.7	6.7	69.7
	System Administrator	27	6.7	6.7	76.4
	Team Lead	41	10.2	10.2	86.6
	Software Architect	19	4.7	4.7	91.3
	Project Manager	20	5.0	5.0	96.3
	IT Service Management	3	.7	.7	97.0
	Business Analyst	2	.5	.5	97.5
	IT Finance	2	.5	.5	98.0
	Director	2	.5	.5	98.5
	Digital Marketing	3	.7	.7	99.3
	Learning Management	2	.5	.5	99.8
	None	1	.2	.2	100.0
	NotAnswered	65	16.1	16.1	16.1
	Total	403	100.0	100.0	

Table 17 presenting that the participants with Job role Software Engineers are most of this survey fallowed by Software developers. The remaining all participants are with different Job roles as shown in the table with their participation in ascending order. It is showing that 65(16.1%) participants are not interested to respond to their Job roles.

Table 18 Frequencies of respondents with a different type of job role

S5 Current Job Role * S2 Familiar with OSS? Crosstabulation				
Count				
		S2 Familiar with OSS?		
		Yes	No	Total
S5 Current Job Role	Software Engineer	128	0	128
	Software Developer	61	0	61
	Testing Engineer	27	0	27
	System Administrator	27	0	27
	Team Lead	41	0	41
	Software Architect	19	0	19
	Project Manager	20	0	20
	IT Service Management	3	0	3
	Business Analyst	2	0	2
	IT Finance	2	0	2
	Director	2	0	2
	Digital Marketing	3	0	3
	Learning Management	2	0	2
	None	1	0	1
	NotAnswered	7	58	65
Total		345	58	403

Figure 12 Bar chart for the frequencies of respondents with a different type of job role

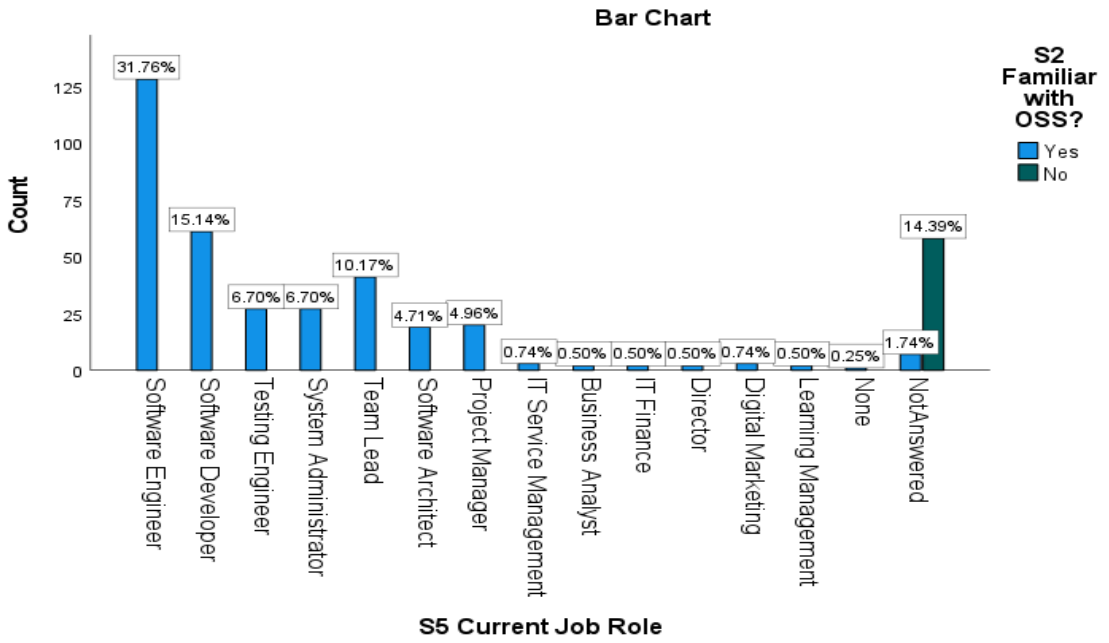


Table 18 and Figure 12, it is illustrating that the majority of the respondents who know about OSS are Software Engineers with 31.76% and is 16.62% higher than Software developers. The 14.39% of participants who do not want to state their Job role claimed that they do not know OSS. Team leaders are the next group with a participant ratio of 10.17% followed by Tested and System admin with 6.7%. Hence it is concluding that Job role influences the choice of using OSS.

S6

Table 19 Frequencies of participants on their Experience

S6 Experience					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 years	166	41.2	41.2	57.3
	5-10 years	97	24.1	24.1	81.4
	10-15 years	46	11.4	11.4	92.8
	15 +	29	7.2	7.2	100.0
	NotAnswered	65	16.1	16.1	16.1
	Total	403	100.0	100.0	

Table 19 showing that 1-5 years' experience people are many respondents with 166(41.2%) which is 17.1% greater than the 5-10 years' experience group. The people with more than 15+ years of experience are the least participants group in this survey with 7.2 %. 16.1 % of respondents are not interested to talk about their level of experience. Hence, it is concluding that a low level of professional experience is more interested to participate in an IT survey.

Table 20 Frequencies of respondents with different Experience levels

S6 Experience * S2 Familiar with OSS? Crosstabulation		
Count		
	S2 Familiar with OSS?	Total

		Yes	No	
S6 Experience	1-5 years	166	0	166
	5-10 years	97	0	97
	10-15 years	46	0	46
	15 +	29	0	29
	NotAnswered	7	58	65
Total		345	58	403

Figure 13 Bar chart for Frequencies of respondents with different Experience level

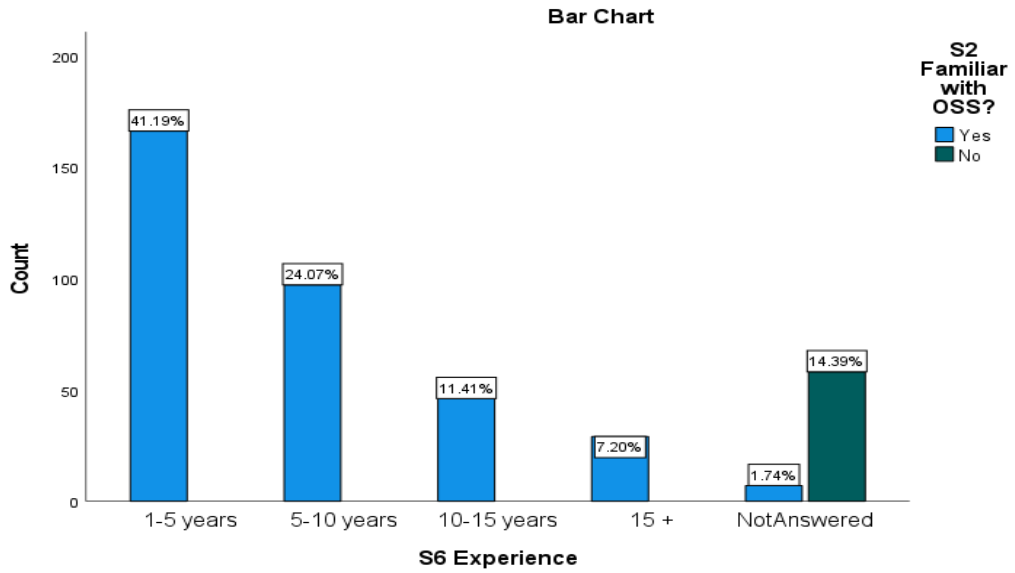


Table 20 and Figure 13 illustrating those 1-5 years experienced participants are more aware of OSS with 166 responses(41.19%). The high-level experience participants are the least bother about the software they are using, and their participation is 7.20%. 14.39 % of people are familiar with OSS, but they do not want to respond on their level of experience. Hence, it is concluding that low-level experience is significantly influencing the choice of using OSS.

S7

Table 21 Number of participants for the type of Software they know

Case Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
$S7[a]	305	75.7%	98	24.3%	403	100.0%
a. Dichotomy group tabulated at value 1.						

Table 21 showing that 305 participants are responded to the type of software they are aware of.

Table 22 Frequencies of respondents on the type of software

$S7 Frequencies				
		Responses		
		N	Percent	Percent of Cases
S7 Type of Software	S7_1 Type of Software – PS	181	38.0%	59.3%
	S7_3 Type of Software - Pirated Software	86	18.1%	28.2%
	S7_4 Type of Software – Freeware	125	26.3%	41.0%
	S7_6 Type of Software – NotAnswered	84	17.6%	27.5%
Total		476	100.0%	156.1%
a. Dichotomy group tabulated at value 1.				

Table 22 illustrating that majority of the participants(180) know about PS with 38% which is 11.7% greater than the 125 participants who know freeware. 84(17.6%) people are not interested to respond to this question. The table, it is showing that 476 as total because this is a cumulative count of 403 respondents who selected multiple responses. Hence, it is concluding that other than OSS people are more aware of PS and freeware software types. As per S2, 345 participants know about OSS which means OSS is the majority type of software that IT professionals are aware of.

Figure 14 Stacked Bar chart for Type of Software used by different Job roles

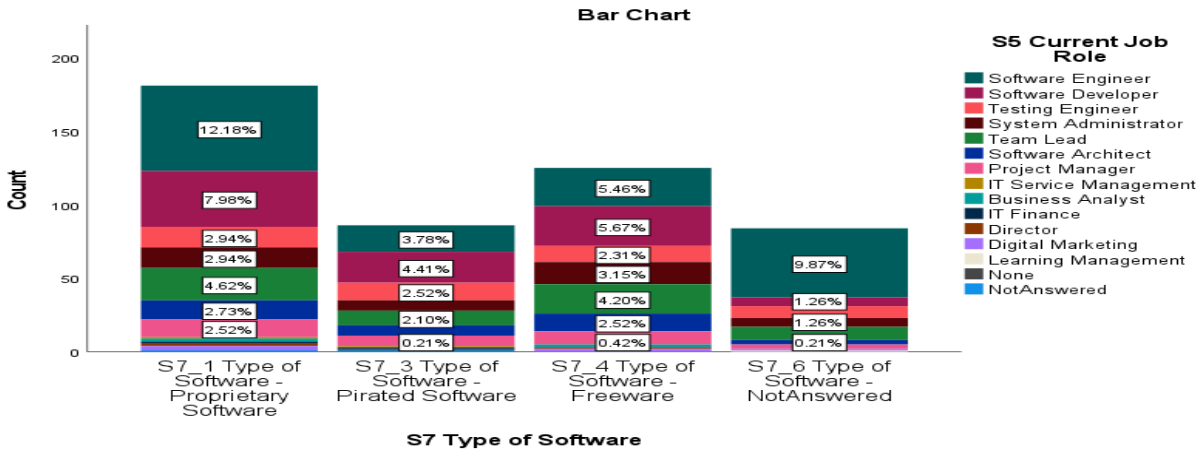


Figure 14 illustrating that participants with different Job roles awareness on the type of software other than OSS. Software engineers are the majority participant rate know about PS and Software developers are the majority participant group who knows freeware and is very slightly higher than Software engineer group. Therefore, it is stating that IT professional job role influences the type of software they chose in their work.

Figure 15 Stacked Bar chart for Type of Software used by different Organisations

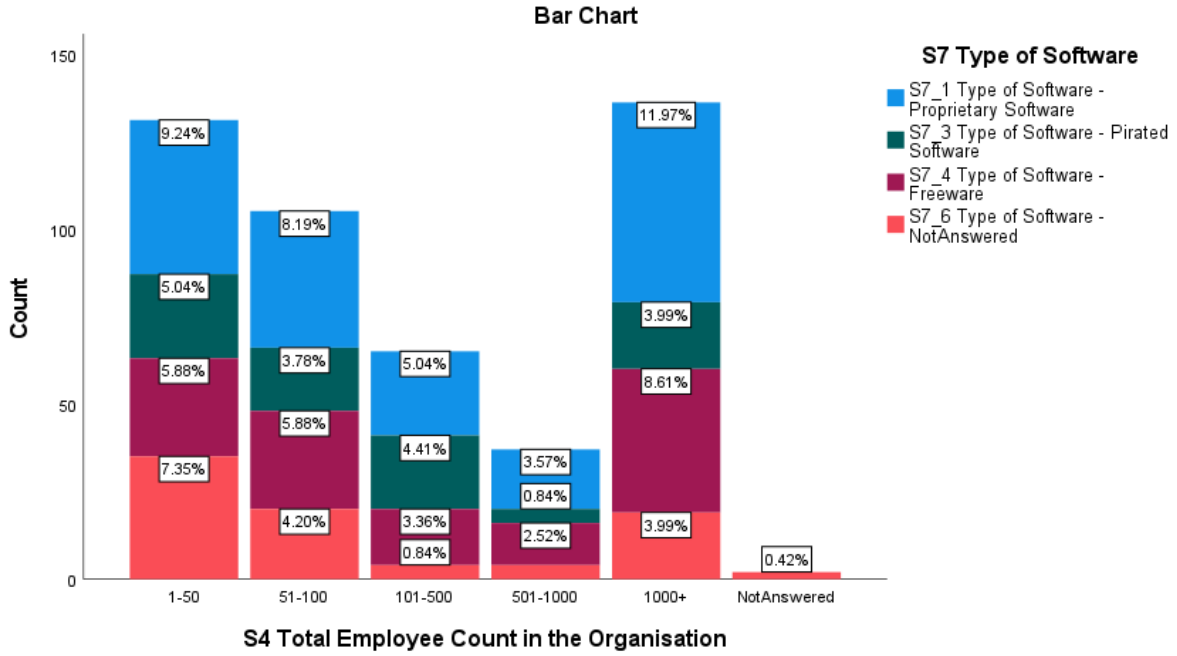


Figure 15 illustrating that participants from big organizations (1000+) are most aware of PS which is 3.36% more when compared to participants who are aware of freeware(8.61%). Also, participants from small companies are having more awareness on PS like 1-50 with 9.24% and 50-100 with 8.19%. The orange color in the graph shows that many participants do not want to comment about their organization and the type of software they are aware of. Freeware is the next type of software that participants from different organizations are aware of. Hence, it concludes that organization has a significant impact on their employees to choose the type of software.

Figure 16 Stacked Bar chart for Type of Software used by different Experience level

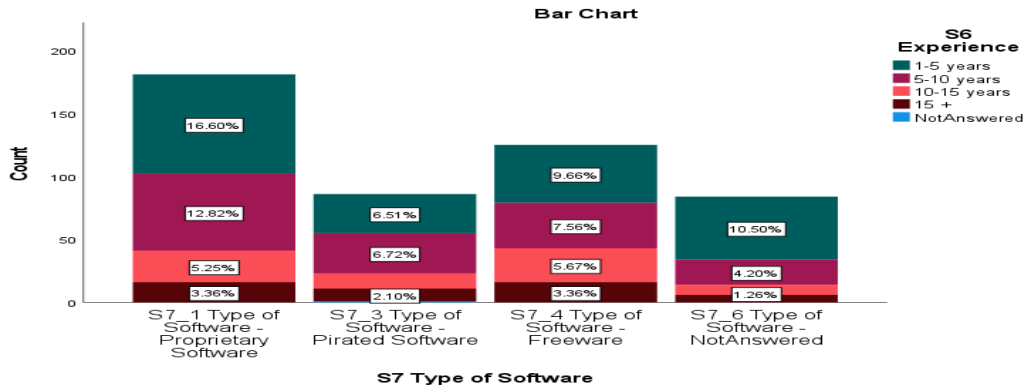


Figure 16 illustrating that participant with experience level 1-5 years are the majority level who knows PS with 16.60% which is 6.94 % more than the participation level on Freeware and 10.09 % more than Pirated software participants. Hence, as per the figure, it can be concluded

that low-level participation groups are having a significant effect on the type of software they are aware of

4.2.2.2. SQ

Table 23 Number of participants for OSS characteristics stable, flexible, quality

Table 23 showing the total number of participants for this survey questions

Statistics				
		S18 OSS Vs Closed/Proprietary - Stable	S19 OSS Vs Closed/Proprietary - Flexible	S20 OSS Vs Closed/Proprietary - Quality
N	Valid	403	403	403
	Missing	0	0	0
Mean		1.69	1.59	1.72
Median		1.73[a]	1.60[a]	1.78[a]
a. Calculated from grouped data.				

S18: OSS is generally more stable than PS

Table 24 Frequency tables for Stable

S18 OSS Vs Closed/Proprietary - Stable					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NotAnswered	94	23.3	23.3	23.3
	Strongly agree	48	11.9	11.9	35.2
	Agree	182	45.2	45.2	80.4
	Neither agree nor disagree	52	12.9	12.9	93.3
	Disagree	22	5.5	5.5	98.8
	Strongly disagree	5	1.2	1.2	100.0
	Total	403	100.0	100.0	

Table 24 illustrates that which software is more quality between OSS and PS. Most of the IT professionals chose “Agree” 45.2% and 11.9% population strongly that OSS is more stable than PS and 1.2% strongly disagrees with that opinion. 12.9% of People chose “Neither agree nor disagree” and 23.3% of people are not interested to respond this question. So overall, the total of strongly agree and agree is 45.2+11.9=57.1% are claiming that OSS is more stable than PS.

Figure 17 Bar chart for OSS VS PS - Stable

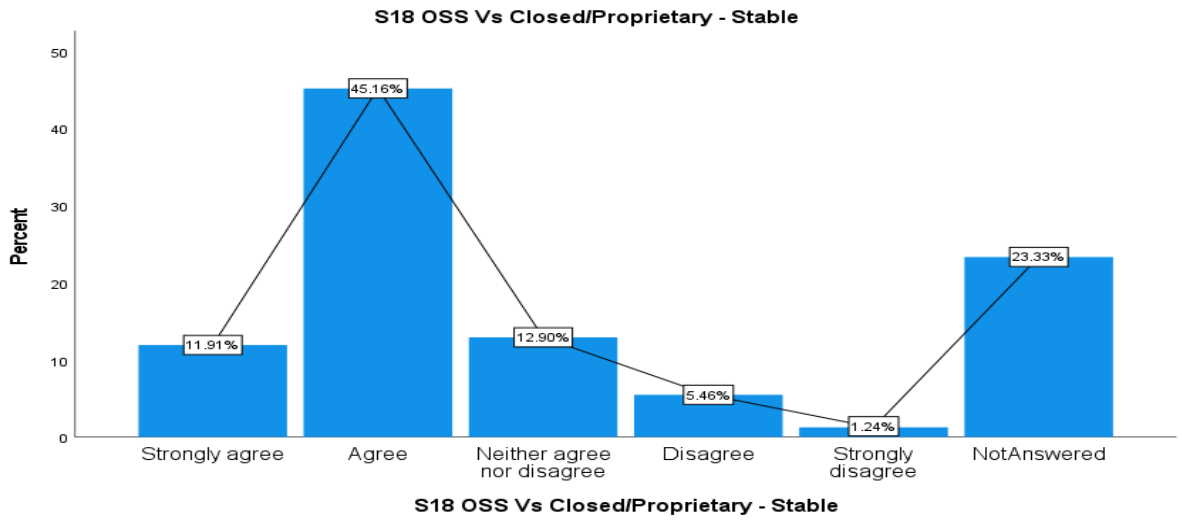


Figure 17 presenting that most IT people believing that OSS is more stable than PS with Agree rate of 45.16%.

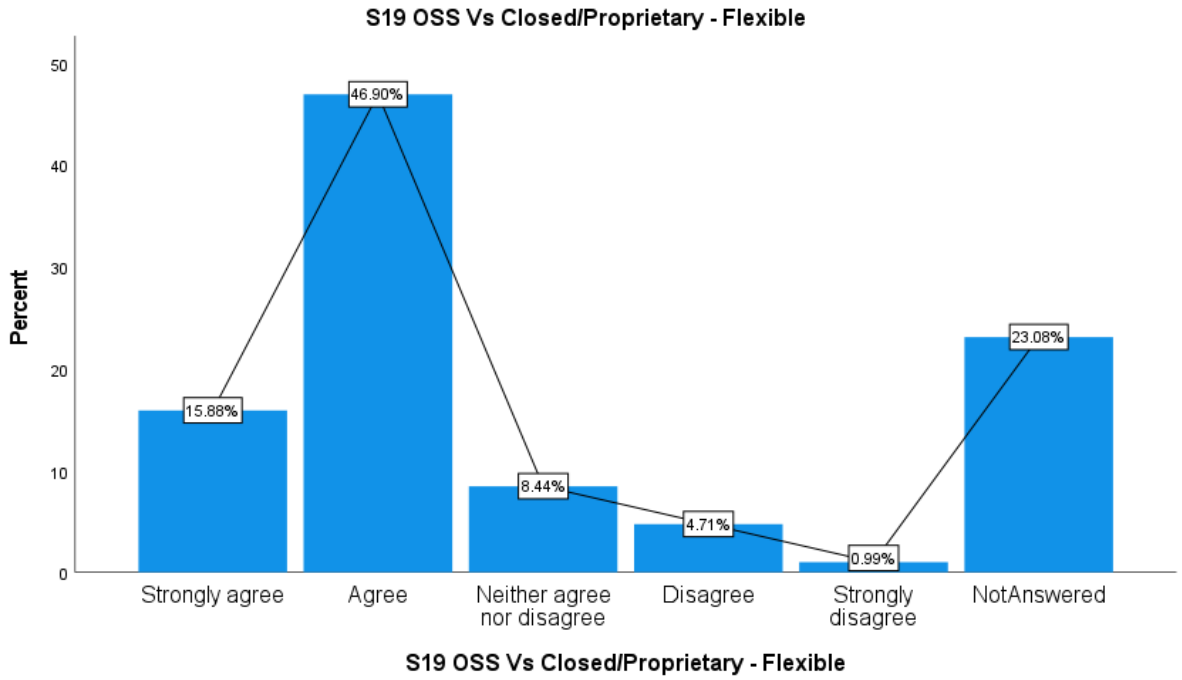
S19: OSS is generally more flexible than PS

Table 25 Frequency tables Flexible

S19 OSS Vs Closed/Proprietary - Flexible					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NotAnswered	93	23.1	23.1	23.1
	Strongly agree	64	15.9	15.9	39.0
	Agree	189	46.9	46.9	85.9
	Neither agree nor disagree	34	8.4	8.4	94.3
	Disagree	19	4.7	4.7	99.0
	Strongly disagree	4	1.0	1.0	100.0
	Total	403	100.0	100.0	

Table 25 illustrates those frequencies for which software is more quality between OSS and PS. Most of the IT professionals chose “Agree” 46.9% as shown in Figure 18 and 15.9% population strongly that OSS is more stable than PS and 1.2% strongly disagrees with that opinion. 8.4% of People chose “Neither agree nor disagree” and 23.1% of people are not interested to respond this question. So overall, the total of strongly agree and agree is 46.9+15.9=61.8% are claiming that OSS is more flexible than PS.

Figure 18 Bar chart for OSS VS PS - Flexible



S20. OSS is generally more Quality than PS

Table 26 Frequency tables for Quality

S20 OSS Vs Closed/Proprietary - Quality					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NotAnswered	92	22.8	22.8	22.8
	Strongly agree	48	11.9	11.9	34.7
	Agree	171	42.4	42.4	77.2
	Neither agree nor disagree	69	17.1	17.1	94.3
	Disagree	18	4.5	4.5	98.8
	Strongly disagree	5	1.2	1.2	100.0
	Total	403	100.0	100.0	

Figure 19 Bar chart for OSS VS PS - Quality

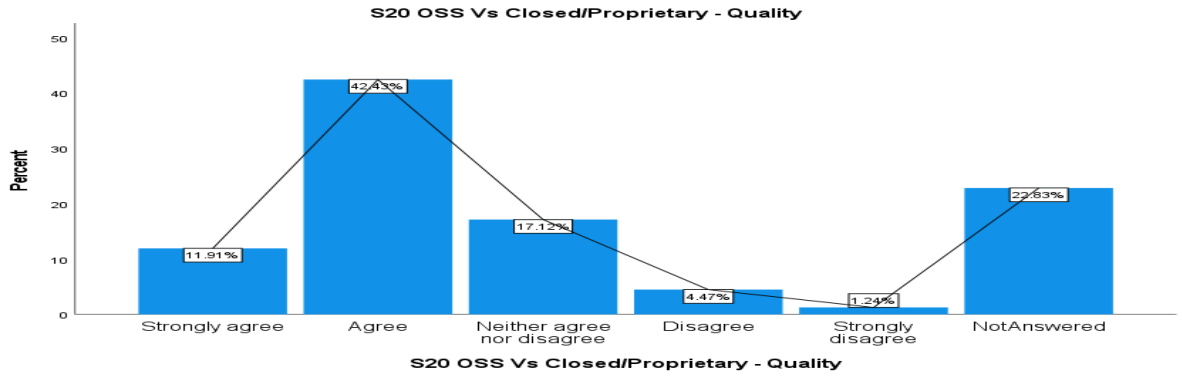


Table 26 illustrates those frequencies for which software is more quality between OSS and PS. Most of the IT professionals chose “Agree” 42.43% as shown in Figure 19 and 11.91% population strongly that OSS is more stable than PS and 1.24% strongly disagrees with that

opinion. 17.12% of People chose “Neither agree nor disagree” and 22.8% of people are not interested to respond this question. So overall, the total of strongly agree and agree is 42.43+11.91=54.34% are claiming that OSS is more Quality than PS.

4.2.2.3. SEC

Frequencies

Table 27 Number of participants for OSS Security

S15: OSS is generally more secure than PS

Statistics		
S15 OSS Vs Closed/Proprietary - Security		
N	Valid	403
	Missing	0
Mean		1.77
Median		1.78[a]
a. Calculated from grouped data.		

Table 27 shows the total number of respondents for this survey is 403.

Table 28 Frequencies of respondents of OSS security

S15 OSS Vs Closed/Proprietary - Security					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	54	13.4	13.4	35.7
	Agree	162	40.2	40.2	75.9
	Neither agree nor disagree	62	15.4	15.4	91.3
	Disagree	26	6.5	6.5	97.8
	Strongly disagree	9	2.2	2.2	100.0
	NotAnswered	90	22.3	22.3	22.3
	Total	403	100.0	100.0	

Figure 20 Bar chart for OSS Security

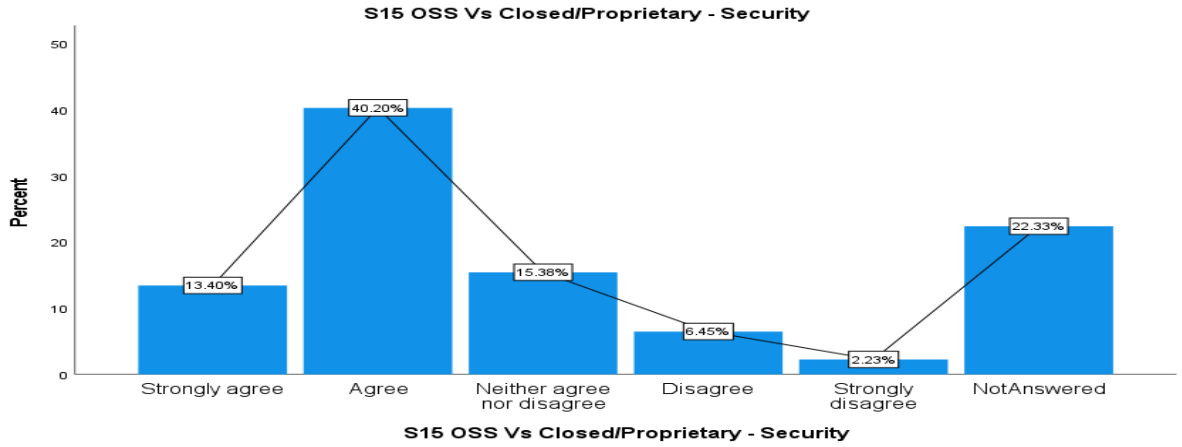


Table 28 illustrates those frequencies for which software is more secure between OSS and PS. Most of the IT professionals chose “Agree” 40.20% as shown in Figure 20 and 13.40% population strongly that OSS is more secure than PS and 2.23% strongly disagrees with that opinion. 15.38% of people chose “Neither agree nor disagree”, 6.45 % are opted for “Disagree” and 22.33% of people are not interested to respond this question. So overall the “Agree” rate is most of this survey and hence the sum of “Strongly agree” and “Agree” is the percentage of participants who conclude that OSS is more secure than PS.

4.2.2.4. PE

Table 29 Number of participants for OSS - PE

Statistics					
		S12 OSS - Enhances Effectiveness	S13 OSS - Enhances Productivity	S21 OSS Vs Closed/Proprietary - Credibility	S24 OSS Modification
N	Valid	403	403	403	403
	Missing	0	0	0	0
Mean		1.56	1.51	1.67	1.56
Median		1.58[a]	1.53[a]	1.71[a]	1.55[a]
a. Calculated from grouped data.					

S12 OSS - Enhances Effectiveness

Table 30Frequency of respondents for OSS Effectiveness

S12 OSS - Enhances Effectiveness					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	87	21.6	21.6	41.4
	Agree	183	45.4	45.4	86.8
	Neither agree nor disagree	38	9.4	9.4	96.3
	Disagree	13	3.2	3.2	99.5
	Strongly disagree	2	.5	.5	100.0
	NotAnswered	80	19.9	19.9	19.9
	Total	403	100.0	100.0	

Figure 21 Bar chart of respondents for OSS Effectiveness

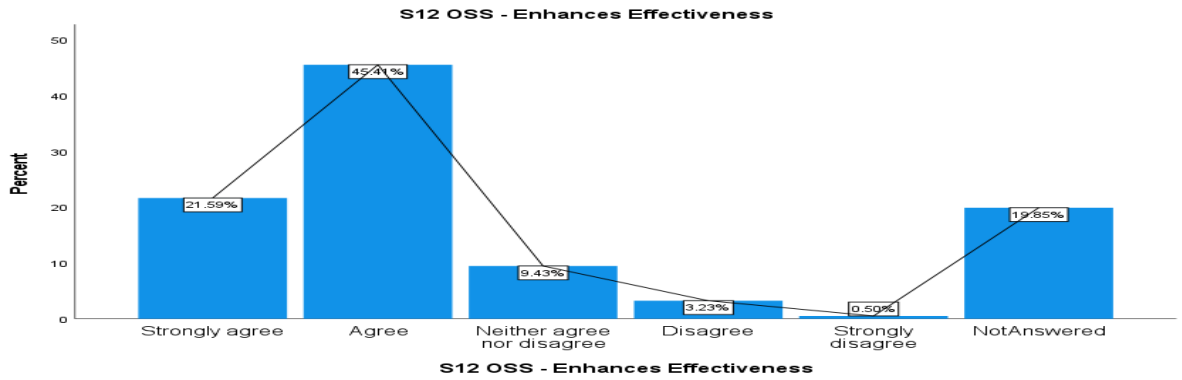


Table 30 illustrates those frequencies for which effectiveness is increased with OSS. Most of the IT professionals chose "Agree" 44.40% as shown in Figure 21. 19.85% are not responded to this survey question. 21.59% strongly believe that OSS enhances their effectiveness, but 3.23% disagree with that and a negligible percentage of 0.5% are strongly disagree with that. 9.43%not mentioned their decision whether it is "Agree or Disagree". Hence, from the analysis, it is concluding that the sum of "Agree" and "Strongly Agree" values showing that the majority of people believe that OSS enhances their effectiveness.

S13 OSS - Enhances Productivity

Table 31 Frequency of respondents for OSS Productivity

S13 OSS - Enhances Productivity					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	86	21.3	21.3	43.4
	Agree	175	43.4	43.4	86.8
	Neither agree nor disagree	42	10.4	10.4	97.3
	Disagree	9	2.2	2.2	99.5
	Strongly disagree	2	.5	.5	100.0
	NotAnswered	89	22.1	22.1	22.1
	Total	403	100.0	100.0	

Figure 22 Bar chart of respondents for OSS Productivity

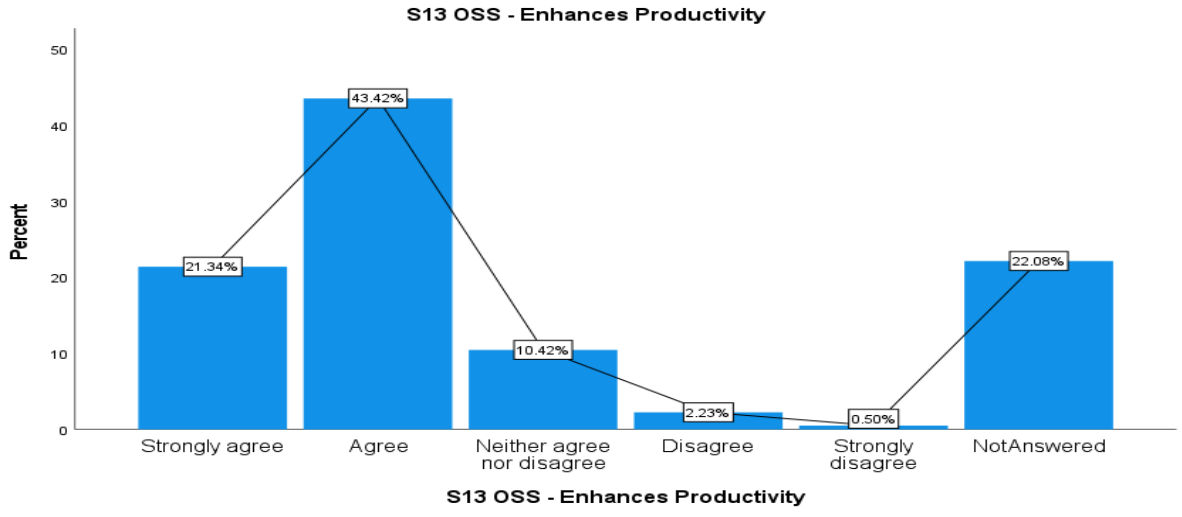


Table 31 illustrates those frequencies for which productivity is increased with OSS. Most of the IT professionals chose “Agree” 43.42% as shown in Figure 22. 22.08% are not responded to this survey question. 21.34% strongly believe that OSS enhances their productivity, but 2.23% disagree with that and a negligible percentage of 0.5% are strongly disagree with that. 10.42% not mentioned their decision whether it is “Agree or Disagree”. Hence, from the analysis, it is concluding that the sum of “Agree” and “Strongly Agree” values showing that the majority of people believe that OSS enhances their effectiveness.

S21 OSS Vs Closed/Proprietary - Credibility

Table 32Frequency of respondents for OSS Credibility

S21 OSS Vs Closed/Proprietary - Credibility					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	54	13.4	13.4	36.5
	Agree	176	43.7	43.7	80.1
	Neither agree nor disagree	54	13.4	13.4	93.5
	Disagree	24	6.0	6.0	99.5
	NotAnswered	93	23.1	23.1	23.1
	Strongly disagree	2	.5	.5	100.0
	Total	403	100.0	100.0	

Figure 23 Bar chart of respondents for OSS Credibility

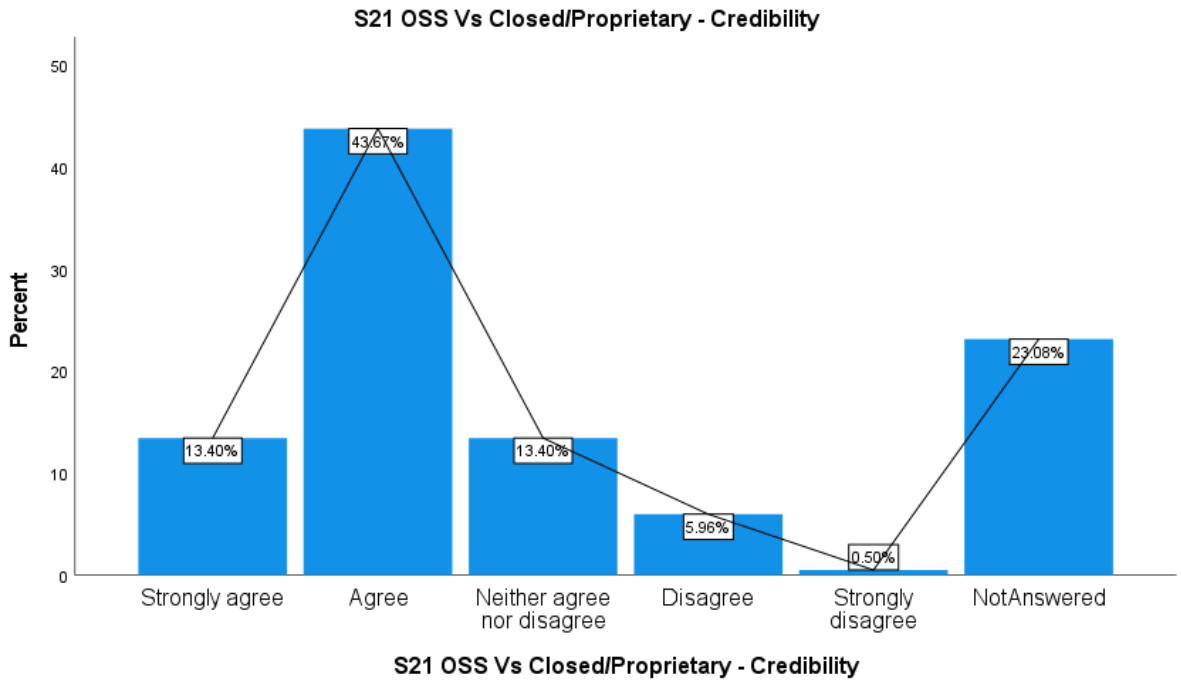


Table 32 illustrates those frequencies for which credibility is increasing with OSS. Most of the IT professionals chose “Agree” 43.7% as shown in Figure 23. 23.1% are not responded to this survey question. 13.40% strongly believe that OSS increases their credibility, but 5.96% disagree with that and a negligible percentage of 0.5% are strongly disagree with that. 13.40% not mentioned their decision whether it is “Agree or Disagree”. Hence, from the analysis, it is

concluding that the sum of "Agree" and "Strongly Agree" values showing that the majority of people believe that OSS increases their credibility.

S24 OSS Modification

Table 33 Frequency of respondents for OSS Modification

S24 OSS Modification					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rarely	93	23.1	23.1	46.9
	Occasionally	122	30.3	30.3	77.2
	Frequently	75	18.6	18.6	95.8
	Never	17	4.2	4.2	100.0
	NotAnswered	96	23.8	23.8	23.8
	Total	403	100.0	100.0	

Figure 24 Bar chart of respondents for OSS Modification

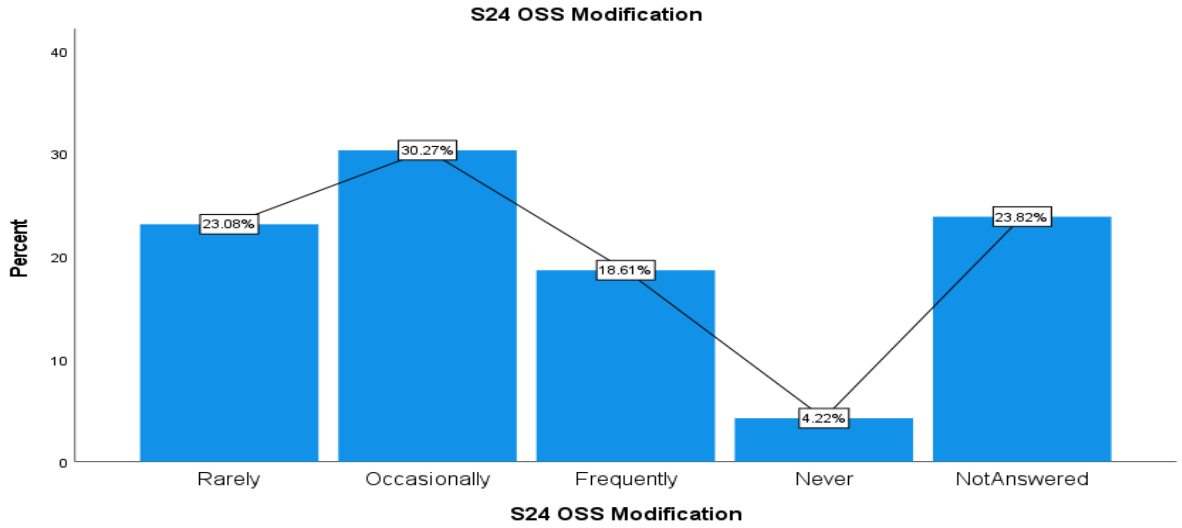


Table 33 illustrates those frequencies for which performance increases with OSS Modification. Most of the IT professionals chose "Occasionally" 30.27%. As shown in Figure 24, 23.82% are not responded to this survey question. 23.08% opted "Rarely" and 18.61% only modify OSS frequently. 4.22% of people never modify OSS. Hence it concludes that IT people modify OSS Occasionally for their requirements.

4.2.2.5. EE

Table 34 Number of participants for OSS- EE

Statistics			
		S19 OSS Vs Closed/Proprietary - Flexible	S23 OSS - Easy Learning
N	Valid	403	403
	Missing	0	0
Mean		1.59	1.55
Median		1.60[a]	1.55[a]

a. Calculated from grouped data.

Table 34 showing the number of participants for this survey is 403.

S14 OSS Vs Closed/Proprietary - Comfortable to use

Table 35 Frequencies of respondents for OSS- Comfortable to use

S14 OSS Vs Closed/Proprietary - Comfortable to use					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Strongly Agree	67	16.6	16.6	39.2
	Agree	181	44.9	44.9	84.1
	Neither agree nor disagree	45	11.2	11.2	95.3
	Disagree	13	3.2	3.2	98.5
	Strongly disagree	6	1.5	1.5	100.0
	NotAnswered	91	22.6	22.6	22.6
	Total	403	100.0	100.0	

Figure 25 Bar chart for OSS- Comfortable to use

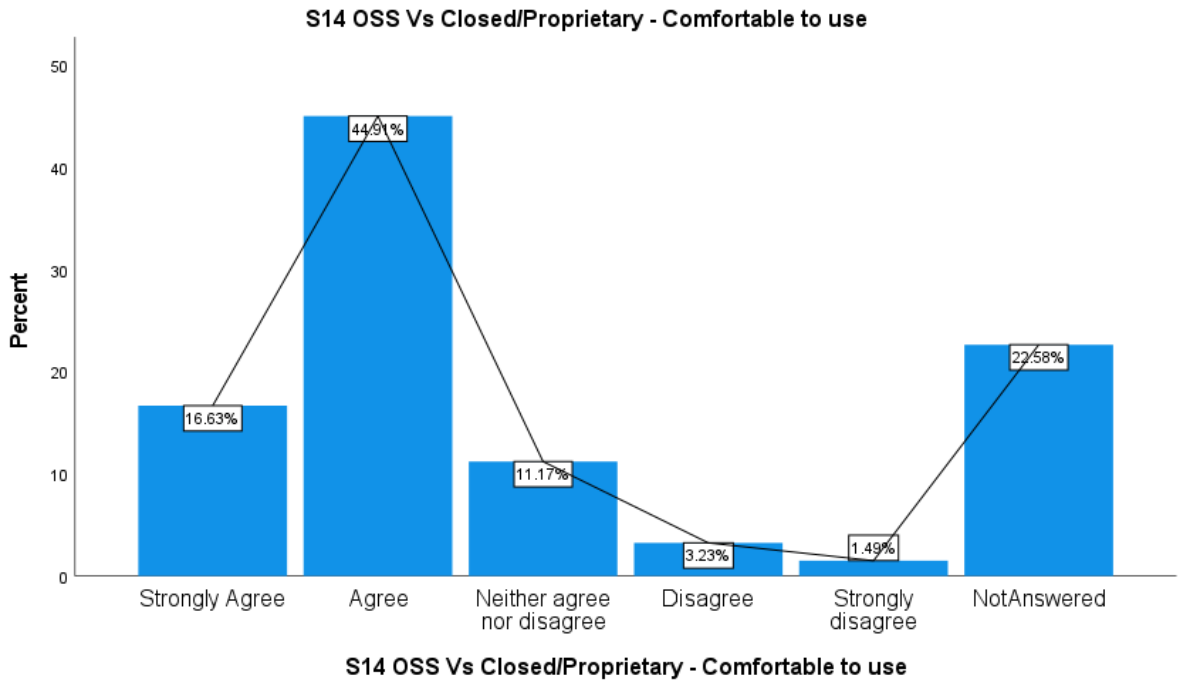


Table 35 illustrates those frequencies for which EE is increasing with OSS. Most of the IT professionals chose “Agree” 44.91% as shown in Figure 25. 22.6% are not responded to this survey question. 16.63% strongly believe that OSS is comfortable to use, but 3.23% disagree with that and a negligible percentage 1.49% strongly disagree with that. 11.17% not mentioned their decision whether it is “Agree or Disagree”. Hence, from the analysis, it is concluding that the sum of “Agree” and “Strongly Agree” values showing that the majority of people believe that OSS is Comfortable to use.

S23 OSS - Easy Learning

Table 36 Frequencies of respondents for OSS- Easy learning

S23 OSS - Easy Learning					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	74	18.4	18.4	42.4
	Agree	173	42.9	42.9	85.4
	Neither agree nor disagree	34	8.4	8.4	93.8
	Disagree	21	5.2	5.2	99.0
	Strongly disagree	4	1.0	1.0	100.0
	NotAnswered	97	24.1	24.1	24.1
	Total	403	100.0	100.0	

Figure 26 Bar chart for OSS- Easy learning

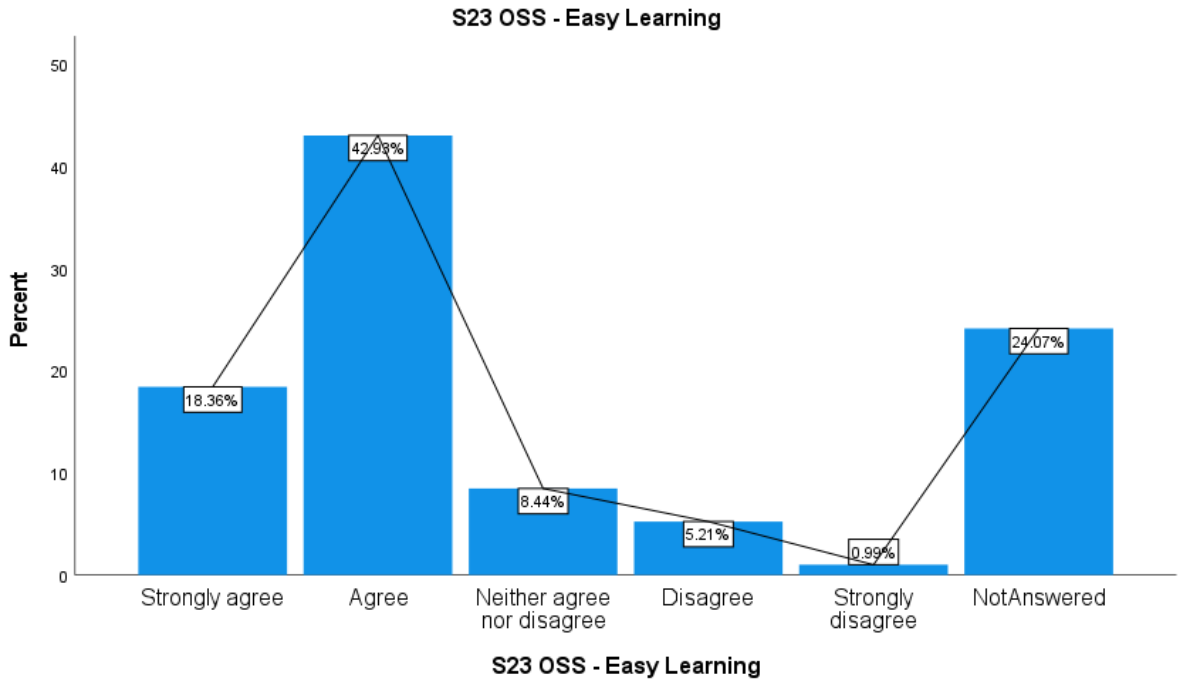


Table 36 illustrates those frequencies for which EE is increasing with OSS. Most of the IT professionals chose "Agree" 42.91% as shown in Figure 26. 24.07% are not responded to this survey question. 18.36% strongly believe that OSS is easy to learn, but 5.21% disagree with that and a negligible percentage 0.99% are strongly disagreed with that. 8.44% not mentioned their decision whether it is "Agree or Disagree". Hence, from the analysis, it is concluding that the sum of "Agree" and "Strongly Agree" values showing that the majority of people believe that OSS is easy to learn.

4.2.2.6. CM

Table 37 Number of respondents for OSS CM

Statistics			
		S16 OSS Vs Closed/Proprietary – Cost	S17 OSS Vs Closed/Proprietary - Maintenance
N	Valid	403	403
	Missing	0	0

Mean	1.60	1.65
Median	1.58[a]	1.67[a]
a. Calculated from grouped data.		

S16 OSS Vs Closed/Proprietary - Cost

Table 38 Frequencies of respondents for OSS- Cost

S16 OSS Vs Closed/Proprietary - Cost					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	73	18.1	18.1	41.4
	Agree	170	42.2	42.2	83.6
	Neither agree nor disagree	41	10.2	10.2	93.8
	Disagree	17	4.2	4.2	98.0
	Strongly disagree	8	2.0	2.0	100.0
	NotAnswered	94	23.3	23.3	23.3
	Total	403	100.0	100.0	

Figure 27 Bar chart for OSS- Cost

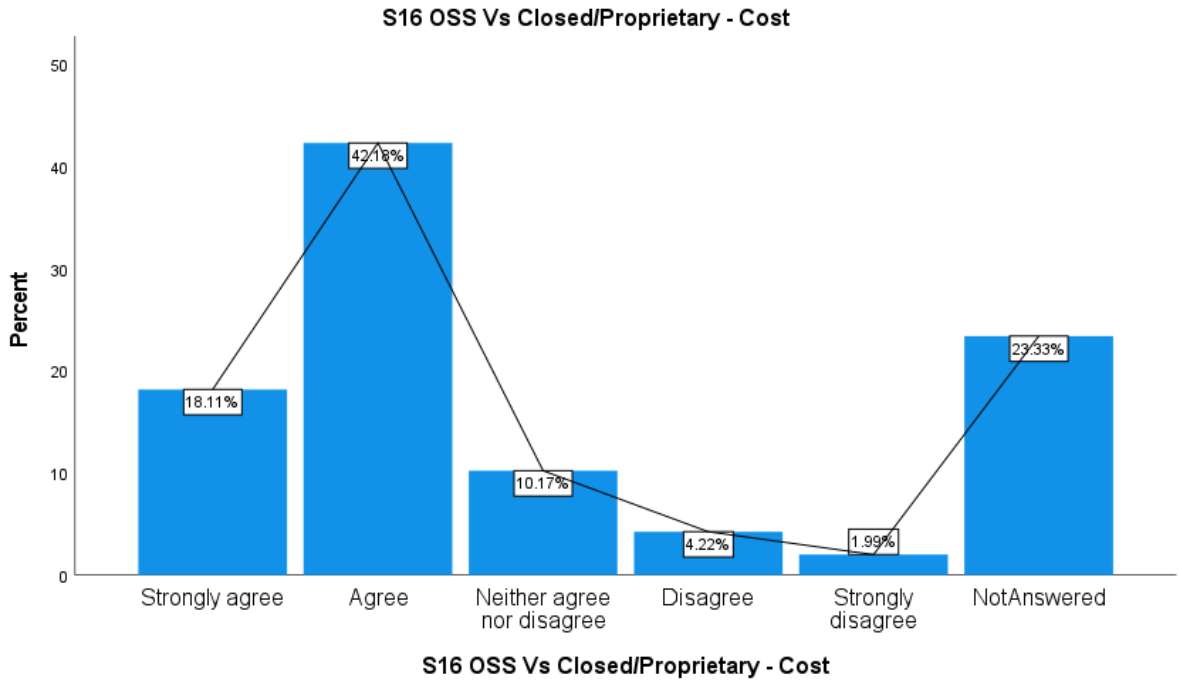


Table 38 illustrates those frequencies for which the cost of OSS is cheaper than PS. Most of the IT professionals chose "Agree" 42.18% as shown in Figure 27. 23.33% are not responded to this survey question. 18.11% strongly believe that OSS is cheaper than PS, but 4.22% disagree with that and a negligible percentage 1.99% strongly disagrees with that. 10.17% not mentioned their decision whether it is "Agree or Disagree". Hence, from the analysis, it is concluding that the sum of "Agree" and "Strongly Agree" values showing that the majority of participants believe that OSS is cheaper than PS.

S17 OSS Vs Closed/Proprietary - Maintenance

Table 39 Frequencies of respondents for OSS- Maintenance

S17 OSS Vs Closed/Proprietary - Maintenance					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	64	15.9	15.9	38.2
	Agree	175	43.4	43.4	81.6
	Neither agree nor disagree	50	12.4	12.4	94.0
	Disagree	18	4.5	4.5	98.5
	Strongly disagree	6	1.5	1.5	100.0
	NotAnswered	90	22.3	22.3	22.3
	Total	403	100.0	100.0	

Figure 28 Bar chart for OSS-Maintenance

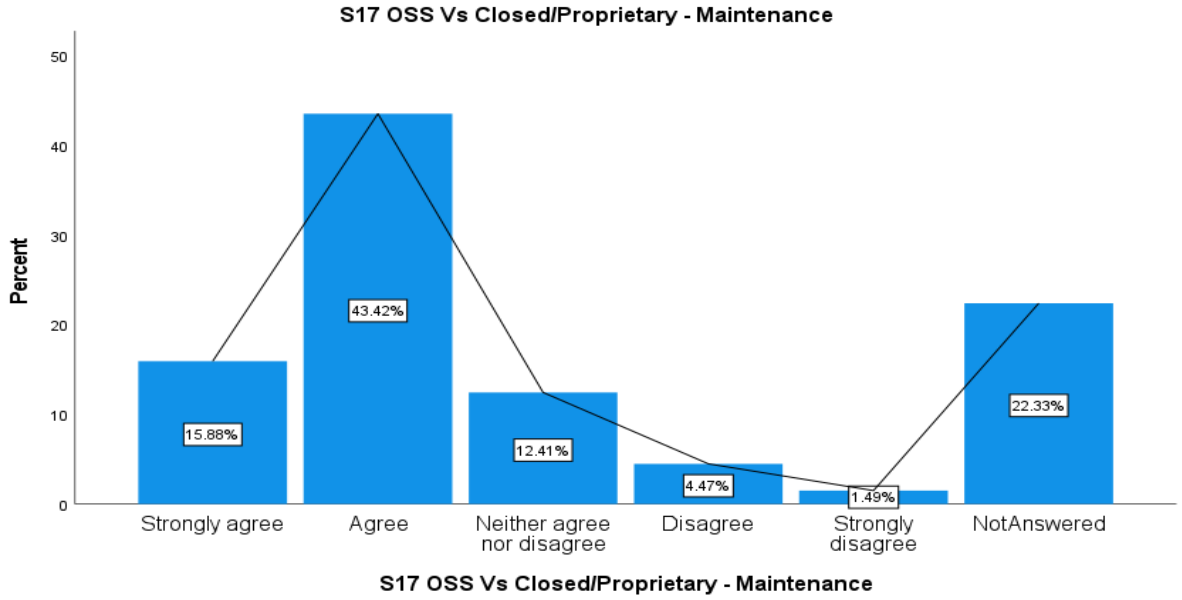


Table 39 illustrates those frequencies for which OSS maintenance is less than PS. Most of the IT professionals chose "Agree" 43.42% as shown in Figure 28. 22.33% are not responded to this survey question. 15.86% strongly believe that OSS has fewer maintenance costs, but 4.47% disagree with that and negligible percentage 1.49% strongly disagree with that. 12.41% not mentioned their decision whether it is "Agree or Disagree". Hence, from the analysis, it is concluding that the sum of "Agree" and "Strongly Agree" values showing that the majority of people believe that OSS has less maintenance when compared to PS.

4.2.2.7. SI

Multiple Response

Table 40 Number of participants for Motivation

Case Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent

$S11[a]	321	79.7%	82	20.3%	403	100.0%
a. Dichotomy group tabulated at value 1.						

Table 40 showing that 321 valid participants for this survey question out of 403 participants.

S17 OSS Motivation

Table 41 Frequencies of respondents for OSS- Motivation

$S11 Frequencies				
		Responses		
		N	Percent	Percent of Cases
S11 Motivation	S11_1 Motivation for OSS usage - My organization moving towards open source	149	31.0%	46.4%
	S11_2 Motivation for OSS usage - OSS enables me to accomplish tasks more quickly	149	31.0%	46.4%
	S11_3 Motivation for OSS usage - We can be able to modify and use the software as per the requirements	99	20.6%	30.8%
	S11_4 Motivation for OSS usage - Using OSS increases the efficiency of the job.	58	12.1%	18.1%
	S11_6 Motivation for OSS usage - There are no alternatives to do the job as good as OSS does	1	0.2%	0.3%
	S11_7 Motivation for OSS usage - Most of the above are free to use	1	0.2%	0.3%
	S11_8 Motivation for OSS usage – NotAnswered	24	5.0%	7.5%
Total		481	100.0%	149.8%
a. Dichotomy group tabulated at value 1.				

Table 41 showing that 31% i.e., 149 respondents claiming that their motivations behind the OSS adoption are their organizations are moving towards OSS and OSS enabling them to accomplish their tasks. 20.6% of IT professionals are using OSS as they can be able to change their OSS software as per their requirements. 12.1% of people found that their efficiency is increased with OSS. 5% people not interested to respond to this question and 02. % of responses showing that the motivations such as users found free OSS and they are unable to find alternatives to do the job.

Frequencies

Table 42 Number of respondents for OSS- Community Support

Statistics		
S22 OSS - Community Support		
N	Valid	403
	Missing	0
Mean		1.62
Median		1.65[a]
a. Calculated from grouped data.		

S22 OSS - Community Support

Table 43 Frequencies of respondents for OSS- Community Support

S22 OSS - Community Support					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	66	16.4	16.4	39.7
	Agree	163	40.4	40.4	80.1
	Neither agree nor disagree	61	15.1	15.1	95.3
	Disagree	17	4.2	4.2	99.5
	Strongly disagree	2	.5	.5	100.0
	NotAnswered	94	23.3	23.3	23.3
	Total	403	100.0	100.0	

Figure 29 Bar chart for Frequencies of respondents for OSS- Community Support

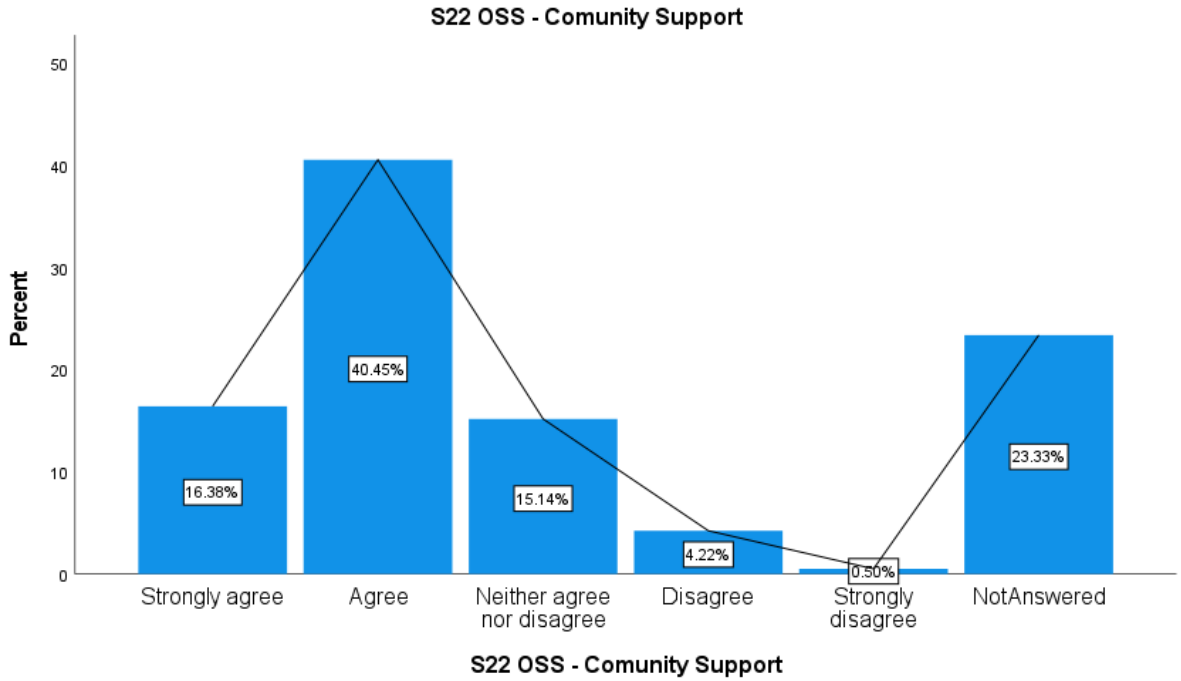


Table 43 illustrates those frequencies for does OSS users getting support when. Most of the IT professionals chose “Agree” 40.45% as shown in Figure 29. 23.33% are not responded to this survey question. 16.38% strongly believe that OSS community support is readily available, but 4.227% disagree with that and a negligible percentage 0.50% strongly disagree that. 15.41%

not mentioned their decision whether it is “Agree or Disagree”. Hence, from the analysis, it is concluding that the sum of “Agree” and “Strongly Agree” values showing that the majority of people believe that they are receiving community support when needed.

4.2.2.8. OSS VS PS

Table 44 Number of participants for OSS VS PS

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
S1 IT Pro & Age>18 * S14 OSS Vs Closed/Proprietary - Comfortable to use	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S15 OSS Vs Closed/Proprietary - Security	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S16 OSS Vs Closed/Proprietary – Cost	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S17 OSS Vs Closed/Proprietary – Maintenance	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S18 OSS Vs Closed/Proprietary – Stable	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S19 OSS Vs Closed/Proprietary – Flexible	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S20 OSS Vs Closed/Proprietary – Quality	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S21 OSS Vs Closed/Proprietary - Credibility	403	100.0%	0	0.0%	403	100.0%

S14 -S21 – OSS Vs PS

Table 45 Frequency responses of OSS VS PS

S1 IT Pro & Age>18 * OSS Vs PS Crosstabulation							
Count							
	OSS Vs PS						
	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	NotAnswered	Total
S14 OSS Vs Closed/Proprietary - Comfortable to use	67	181	45	13	6	91	403
S15 OSS Vs Closed/Proprietary - Security	54	162	62	26	9	90	403
S16 OSS Vs Closed/Proprietary – Cost	73	170	41	17	8	94	403
S17 OSS Vs Closed/Proprietary – Maintenance	64	175	50	18	6	90	403
S18 OSS Vs Closed/Proprietary – Stable	48	182	52	22	5	94	403
S19 OSS Vs Closed/Proprietary – Flexible	64	189	34	19	4	93	403

S20 OSS Vs Closed/Proprietary – Quality	48	171	69	18	5	92	403
S21 OSS Vs Closed/Proprietary – Credibility	54	176	54	24	2	93	403

Table 45 shows that the majority of the IT people are choosing the option "Agree". Hence it is showing that users believing that OSS is better than PS.

4.2.2.9. *OSS*

Table 46 Number of participants for the type of OSS product already they are using

Case Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
$S9[a]	323	80.1%	80	19.9%	403	100.0%
a. Dichotomy group tabulated at value 1.						

Table 46 represents 323 participants are responded to this question with 80.1%.

Table 47 Which OSS Product is using most by IT professionals

$S9 Frequencies				
		Responses		Percent of Cases
		N	Percent	
S9 OSS Products	S9_1 OSS Product Linux (Operating system based on UNIX)	175	15.90%	54.20%
	S9_2 OSS Product Apache (HTTP web browser)	161	14.60%	49.80%
	S9_3 OSS Product Moodle (Course Management System)	97	8.80%	30.00%
	S9_4 OSS Product Mozilla Firefox (Web Browser)	78	7.10%	24.10%
	S9_5 OSS Product Mozilla Thunderbird (Email Client)	77	7.00%	23.80%
	S9_6 OSS Product Open Office (Office Suit)	73	6.60%	22.60%
	S9_7 OSS Product Open Solaries (Unix Operating system from Sun Microsystems)	72	6.60%	22.30%
	S9_8 OSS Product Mediawiki (Wiki server Software)	69	6.30%	21.40%
	S9_9 OSS Product Drupal (Content Management System)	55	5.00%	17.00%
	S9_10 OSS Product WordPress (Most important blogging platform)	43	3.90%	13.30%
	S9_11 OSS Product Magento (Fastest growing e-commerce platform)	40	3.60%	12.40%
	S9_12 OSS Product FileZila (FTP Client)	31	2.80%	9.60%
	S9_13 OSS Product GIMP (Image Editor)	25	2.30%	7.70%
	S9_14 OSS Product VLC (Media Player)	17	1.50%	5.30%
	S9_15 OSS Product Pidgin (Instant messaging tool)	16	1.50%	5.00%
	S9_16 OSS Product Notepad++(Windows based CSS editor)	14	1.30%	4.30%
	S9_17 OSS Product 7-zip (to unzip folders)	14	1.30%	4.30%

	S9_18 OSS Product Blender (3D content creation)	13	1.20%	4.00%
	S9_19 OSS Product PDFCreator (Create PDF files)	12	1.10%	3.70%
	S9_20 OSS Product TrueCrypt (Encryption Program)	8	0.70%	2.50%
	S9_22 OSS Product Selinium	6	0.50%	1.90%
	S9_23 OSS Product None	2	0.20%	0.60%
	S9_24 OSS Product NotAnswered	1	0.10%	0.30%
Total		1099	100.00%	340.20%
a. Dichotomy group tabulated at value 1.				

Table 47 showing that Linux is the top OSS product using by 175 participants with 15.90%. The next most using product is Apache (HTTP web browser) by 161(14.60%) participants. 97(8.80%) respondents using Moodle. The remaining all OSS product usage having a slight difference as shown in the table.

4.2.3 Univariate Analysis: Chi-square

Univariate analysis: The researcher used the Chi-square test to examine the relationship between the OSS components and the core survey question. Appendix **A6. Chi-Square Tests** contains the test analysis. To determine the correlation, the p-value obtained after doing the Chi-square test in SPSS is compared to the 95 percent confidence level. As a result, if the p-value is less than or equal to 0.05, the researcher will reject the null hypothesis (the significance level). The evidence suggests that the alternative hypothesis is correct. The results are statistically significant. When the p-value is greater than the significance level (p>0.05), the null hypothesis is accepted. The results are significant.

4.2.3.1. Analysis for finding the impact of SEC on PE

H0: Software SEC will have no impact on the PE of OSS.

H1: Software SEC will have a positive impact on the PE of OSS.

Table 48 Chi-Square test for SEC->PE

Chi-Square Tests	Pearson Chi-Square Asymptotic Significance (2-sided)
S15 OSS VS PS - SEC * S12 OSS - Enhances Effectiveness	.000
S15 OSS VS PS - SEC * S13 OSS - Enhances Productivity	.000
S15 OSS VS PS - SEC * S21 OSS VS PS – Credibility	.000
S15 OSS VS PS - SEC * S24 OSS Modification	.000

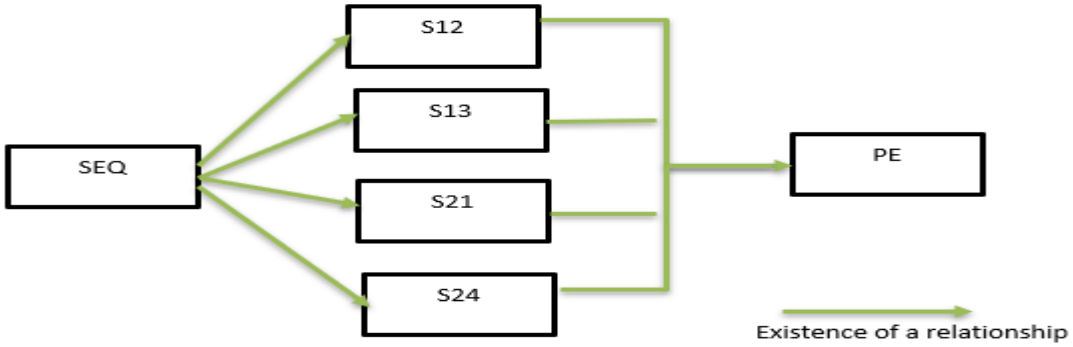
According to the tests, the p-value obtained for all tests is 0.000.

The p-value simply indicates the strength of the evidence supporting the null hypothesis. Whenever the p-value falls below the significance level, the null hypothesis is rejected.

Hence, when you find a p-value of 0.000, you should compare it with the significance level. The most common significance levels are 0.1, 0.05, and 0.01. 0.000 is lower than all of these significance levels, so the null hypothesis must be rejected for each case(ZACH,2018). As per the tests, the p-value is 0.000 so that null hypotheses i.e., Software SEC does not affect PE, are rejected. And it is possible to conclude that there is a relationship between SEC and PE.

According to the Chi-square analysis results in Table 48, the relationship between the SEC and PE is positive because the p-value is less than 0.05, which is significant statistically.

Figure 30 The relationship between SEC and PE



In above

Figure 30, S15 is about SEC, S12 is about OSS Enhances Effectiveness, S13 is about OSS Enhances about Productivity, S21 is about OSS Credibility and S24 is about OSS modification.

In

Figure 30, the existence of a relationship is shown by a green line.
The relationship between SEC and PE is proved from the Chi-square analysis result and is agree with the previous studies and is found that a considerable value of the security has a critical impact on the perceived efficacy and equal effect on the acceptance and utilization of OSS(Safadi et al., 2015; Shin, 2010).

4.2.3.2. Analysis for finding the impact of SQ on PE

H0:There is no significant relationship between OSS's SQ and BI to use OSS.

H1:There is a significant relationship between OSS's SQ and BI to use OSS.

Table 49 Chi-Square test for SQ->PE

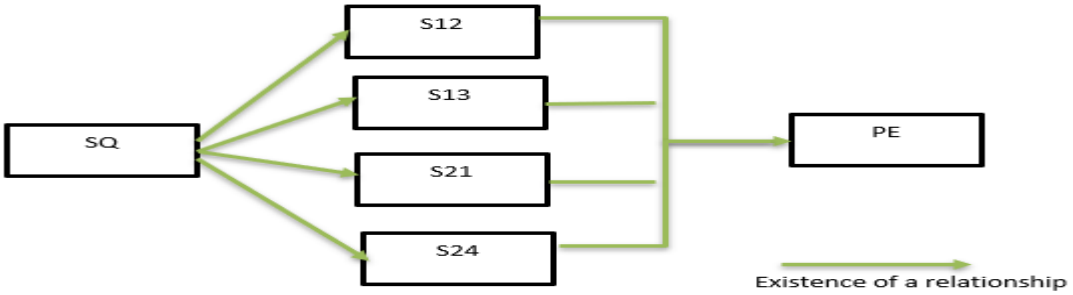
Chi-Square Tests	Pearson Chi-Square Asymptotic Significance (2-sided)

S18 OSS VS PS - Stable * S12 OSS - Enhances Effectiveness	.000
S18 OSS VS PS - Stable * S13 OSS - Enhances Productivity	.000
S18 OSS VS PS - Stable * S21 OSS VS PS – Credibility	.000
S18 OSS VS PS - Stable * S24 OSS Modification	.000
S20 OSS VS PS - SQ * S12 OSS - Enhances Effectiveness	.000
S20 OSS VS PS - SQ * S13 OSS - Enhances Productivity	.000
S20 OSS VS PS - SQ * S21 OSS VS PS – Credibility	.000
S20 OSS VS PS - SQ * S24 OSS Modification	.000

Considering all tests, the p-value obtained for each is 0.000.

According to with Chi-square analysis results in Table 49, the relationship between SQ and PE is positive since the p-value is less than all significant values such as 0.05, which is statistically meaningful. As a consequence, the null hypothesis H0, that SQ does not affect PE, is rejected. And it is possible to conclude that there is a relationship between SQ and PE.

Figure 31 The relationship between SQ and PE



In Figure 31, S18, S20 is about SQ, S12 is about OSS Enhances Effectiveness, S13 is about OSS Enhances about Productivity, S21 is about OSS Credibility and S24 is about OSS modification. The existence of a relationship is shown by a green line.

The relationship between SQ and PE is proved from the Chi-square analysis result. The result agrees with the previous studies and is found that many researchers claimed that software quality has a significant impact on acceptance because if the system with good quality will provide good performance (Letswamotse, Malekian, & Modieginyane, 2020; Venkatesh et al., 2003).

4.2.3.3. Analysis for finding the impact of PE on BI

H0: PE has no impact on the intention to use open-source software.

H1: PE has a positive impact on the intention to use open-source software.

Table 50 Chi-Square test for PE->BI

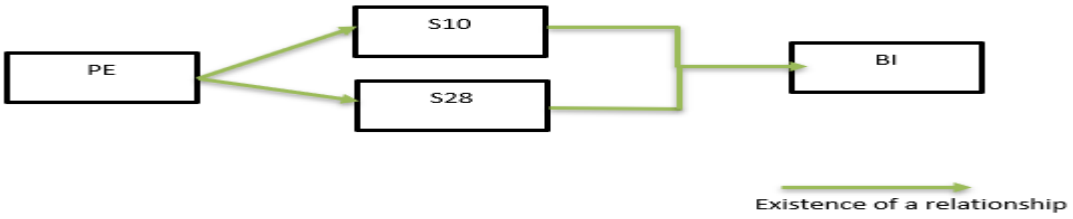
Chi-Square Tests	Pearson Chi-Square Asymptotic Significance (2-sided)

S12 OSS - Enhances Effectiveness * S10 OSS Products Usage	.000
S12 OSS - Enhances Effectiveness * S28 OSS User Satisfaction	.000
S13 OSS - Enhances Productivity * S10 OSS Products Usage	.000
S13 OSS - Enhances Productivity * S28 OSS User Satisfaction	.000
S21 OSS VS PS - Credibility * S10 OSS Products Usage	.000
S21 OSS VS PS - Credibility * S28 OSS User Satisfaction	.000
S24 OSS Modification * S10 OSS Products Usage	.000
S24 OSS Modification * S28 OSS User Satisfaction	.000

Based on the current tests, the p-value obtained for all tests is 0.000.

According to the Chi-square analysis results shown in Table 50, the relationship between PE and BI is positive since the p-value is less than 0.05, which is statistically relevant. Thus, the null hypothesis H0 is rejected as the p-value is less than all significant levels, indicating that PE does not affect the intention to utilize OSS can be rejected. Therefore, it can be concluded that there is a relationship between PE and the BI to use open-source software.

Figure 32 The relationship between PE and BI



In Figure 32, S12 is about OSS Enhances Effectiveness, S13 is about OSS Enhances about Productivity, S21 is about OSS Credibility and S24 is about OSS modification which belongs to PE. The existence of a relationship is shown by a green line

S10 is about OSS Products Usage, S28 is about OSS User Satisfaction.

The relationship between PE and BI is proved from the Chi-square analysis result. The result agrees with the previous studies that the software systems are accepted by users only if they believe their performance enhances, reflecting the perception of PE, OSS is a customizable product that enhances the user performance(Ghapanchi & Aurum, 2012; Venkatesh et al., 2003).

4.2.3.4. Analysis for finding the impact of SI on BI

H0:SI has no impact on the intention to use OSS

H1:SI has a positive impact on the intention to use OSS

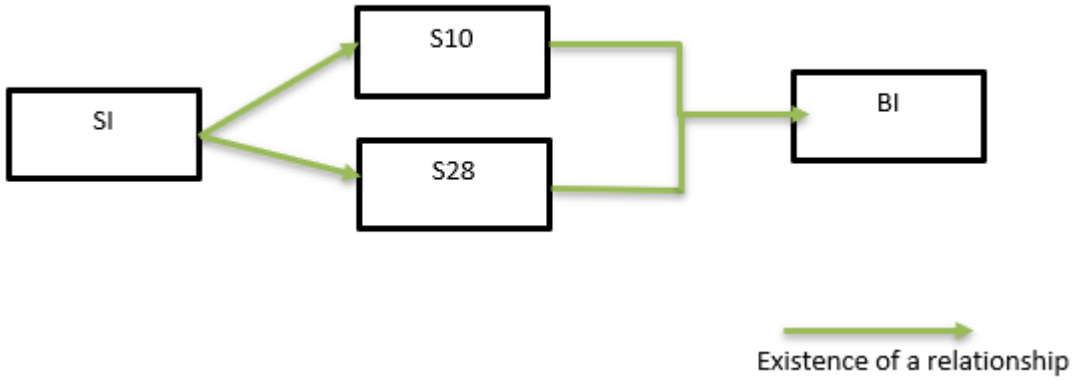
Table 51 Chi-Square test for SI->BI

Chi-Square Tests	Pearson Chi-Square Asymptotic Significance (2-sided)
S22 OSS - Community Support * S10 OSS Products Usage	.000
S22 OSS - Community Support * S28 OSS User Satisfaction	.000

According to the Chi-square analysis results presented in Table 51, the relationship between SI and BI is positive since the p-value is less than 0.05. Based on the current analyses, the p-value obtained for all tests is 0.000.

As a result, the null hypothesis H0 is rejected, indicating that SI does not affect the desire to use OSS. Therefore, it can be concluded that SI has a good effect on the desire to utilize OSS.

Figure 33 The relationship between SI and BI



In Figure 33, S22 is about OSS community support which belongs to SI. S10 is about OSS Products Usage, S28 is about OSS User Satisfaction. The existence of a relationship is shown by a green line.

The relationship between SI and BI is proved from the Chi-square analysis result. The result agrees with the previous studies that the software systems are accepted by users only if they believe get support from the community (Bhatt et al., 2016; Zuiderwijk et al., 2015).

4.2.3.5. Analysis for finding the impact of EE on BI

H0:The EE has no impact on the intention to use OSS.

H1:The EE has a positive impact on the intention to use OSS.

Table 52 Chi-Square test for EE ->BI

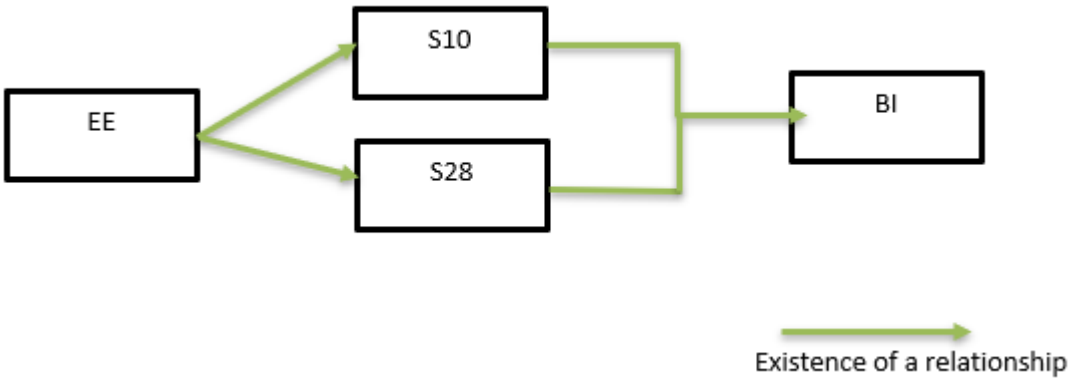
Chi-Square Tests	Pearson Chi-Square Asymptotic Significance (2-sided)
S14 OSS VS PS - Comfortable to use * S10 OSS Products Usage	.000
S14 OSS VS PS - Comfortable to use * S28 OSS User Satisfaction	.000
S19 OSS VS PS - Flexible * S10 OSS Products Usage	.000

S19 OSS VS PS - Flexible * S28 OSS User Satisfaction	.000
S23 OSS - Easy Learning * S10 OSS Products Usage	.000
S23 OSS - Easy Learning * S28 OSS User Satisfaction	.000

According to the tests, the p-value obtained for all tests is 0.000. According to the Chi-square analysis results shown in Table 52, the relationship between SI and BI is positive since the p-value is less than 0.05, which is statistically significant.

As a result, the null hypothesis H0 that is EE does not affect the intention to utilize OSS is rejected. The intention to use OSS is positively influenced by EE.

Figure 34 The relationship between EE and BI



In

Figure 34, S14 is Comfortable to use, S19 is Flexible, S23 is Easy Learning which belongs to EE. S10 is about OSS Products Usage, S28 is about OSS User Satisfaction. The existence of a relationship is shown by a green line.

The relationship between EE and BI is proved from the Chi-square analysis result. The result agrees with the previous studies that the software systems are accepted by users only if they believe it is easy to learn and effortless to use(Alrawashdeh et al., 2020; Henrico et al., 2021).

4.2.3.6. Analysis for finding the impact of CM on BI

H0: The CM has no impact on the intention to use OSS.

H1:The CM has a positive impact on the intention to use OSS.

Table 53 Chi-Square test for CM ->BI

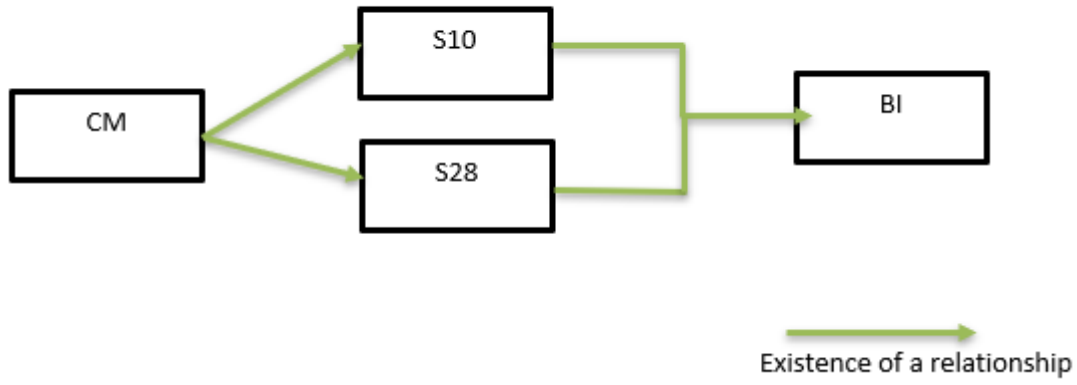
Chi-Square Tests	Pearson Chi-Square Asymptotic Significance (2-sided)
S16 OSS VS PS - Cost * S10 OSS Products Usage	.000
S16 OSS VS PS - Cost * S28 OSS User Satisfaction	.000

S17 OSS VS PS - Maintenance * S10 OSS Products Usage	.000
S17 OSS VS PS - Maintenance * S28 OSS User Satisfaction	.000

Based on the tests, the p-value obtained for all tests is 0.000.

According to the Chi-square analysis results shown in Table 53, the relationship between SI and BI is positive since the p-value is less than 0.005, which is statistically meaningful. As a result, the null hypothesis H0 is rejected, indicating that CM does not affect the intention to utilize OSS. Hence, it is concluded that the intention to use OSS is influenced by CM.

Figure 35 The relationship between CM and BI



In

Figure 35, S16 is about Cost and S17 is about maintenance which belongs to SI. S10 is about OSS Products Usage, S28 is about OSS User Satisfaction. The existence of a relationship is shown by a green line.

The relationship between CM and BI is proved from the Chi-square analysis result. The result agrees with the previous studies that the software systems are accepted by users only if they believe perceived cost benefits using it and the high and monetary costs for usage are low (Ayala et al., 2011).

4.2.3.7. Analysis for finding the impact of BI on OSS

H0:The relationship between the actual use of OSS and a user's BI is not significant.

H1:The relationship between the actual use of OSS and a user's BI is significant.

Table 54 Chi-Square test for BI ->OSS

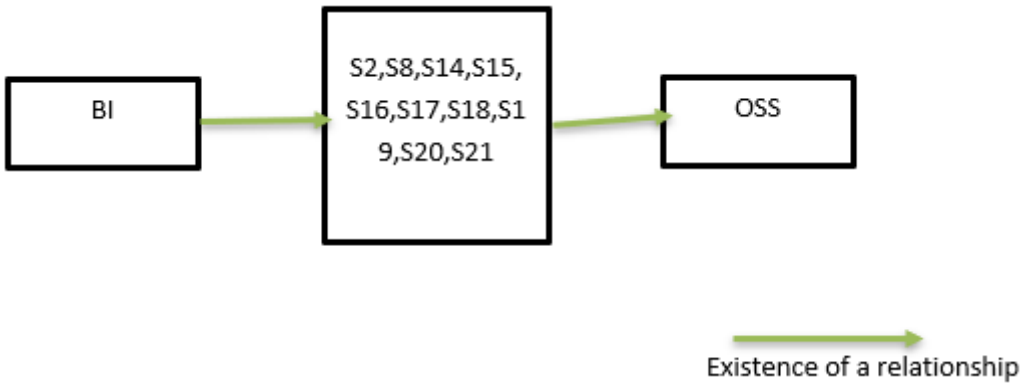
Chi-Square Tests	Pearson Chi-Square Asymptotic Significance (2-sided)
S10 OSS Products Usage * S14 OSS VS PS - Comfortable to use	.000

S10 OSS Products Usage * S15 OSS VS PS – SEC	.000
S10 OSS Products Usage * S16 OSS VS PS – CM	.000
S10 OSS Products Usage * S17 OSS VS PS – Maintenance	.000
S10 OSS Products Usage * S18 OSS VS PS – Stable	.000
S10 OSS Products Usage * S19 OSS VS PS – Flexible	.000
S10 OSS Products Usage * S20 OSS VS PS – SQ	.000
S10 OSS Products Usage * S21 OSS VS PS – Credibility	.000
S10 OSS Products Usage * S2 Familiar with OSS?	.000
S10 OSS Products Usage * S8 Is OSS alternative ?	.000
S28 OSS User Satisfaction * S14 OSS VS PS - Comfortable to use	.000
S28 OSS User Satisfaction * S15 OSS VS PS – SEC	.000
S28 OSS User Satisfaction * S16 OSS VS PS – CM	.000
S28 OSS User Satisfaction * S17 OSS VS PS – Maintenance	.000
S28 OSS User Satisfaction * S18 OSS VS PS – Stable	.000
S28 OSS User Satisfaction * S19 OSS VS PS – Flexible	.000
S28 OSS User Satisfaction * S20 OSS VS PS – SQ	.000
S28 OSS User Satisfaction * S21 OSS VS PS – Credibility	.000
S28 OSS User Satisfaction * S2 Familiar with OSS?	.000
S28 OSS User Satisfaction * S8 Is OSS alternative ?	.000

Based on the current tests, the p-value obtained for all tests is .000.

According to the Chi-square analysis results in Table 54, the relationship between BI and OSS adoption is positive because the p-value is less than 0.005, which is statistically significant. As an outcome, the null hypothesis H0 is rejected i.e., BI does not affect the intention to utilize OSS. The intention to use OSS is positively influenced by BI.

Figure 36 The relationship between BI and OSS



The existence of a relationship is shown by a green line in Figure 36.

The relationship between SI and BI is proved from the Chi-square analysis result. The result is consistent with the previous studies that are user behavioral intentions have a significant impact on the acceptance of the system (Gallego et al., 2015; Venkatesh et al., 2003).

4.2.4 Regression Testing: Linear

A moderator analysis is performed to see if the value of a third variable affects (moderates) the relationship between two variables. The addition of a linear interaction term to a multiple regression model is the typical way for assessing if a moderating effect exists. This form of analysis is known as moderated multiple regression or MMR. The value R-squared is a measure of goodness-of-fit for linear regression models, the statistic indicates the variance percentage explained in the dependent variable by the independent variable which is a relationship strength between variables in the model on a scale of 0-100%(Sweet & Grace-Martin, 1999). The regression test analysis is presented in Appendix **A7. Regression Testing**

4.2.4.1. Analysis on IT Speciality Moderator effect on the connection between SEC and PE

H0: The connection between SEC and PE not moderated by IT specialty

H1: The connection between SEC and PE is moderated by IT specialty

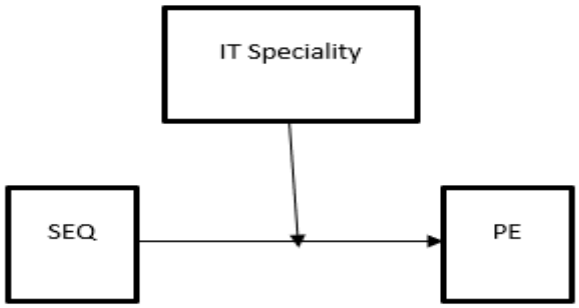


Figure 37 The IT Speciality effect on the relation between SEC and PE

The regression test for this scenario is presented in Appendix **A7.1. SEC->PE.**

Table 55 presents the regression test results. The total number of participants for this is 403 with an average mean of 1.61.

Table 55 Regression test statistics for SEC->PE moderated by IT Speciality

Statistics							
	Avg. Mean	Avg. Std. Deviation	N	Adjusted R Square	R Square Change	Sig. F Change	Anova
SEC->PE by IT Speciality	1.61	1.138	403	.457	0.459	.004	.000[b]

The “Adjusted R square” value is .457 which means the adjusted R^2 value of 45.7% for this regression implies that the independent variable explains 45.7% of the variation in the dependent variable. The adjusted R-square is the R-square adjusted for the number of parameters. For the addition of a predictor R-square should always increase, perhaps not significantly, but it should increase(Thakur, 2021). Here in the test results after adding the IT specialty the R-square value increased and is more than the adjusted R-square.

"R Square Change", shows the increase in variation explained by the addition of the interaction term. The change in R2 is reported as .459, which is a proportion. More usually, this measure is reported as a percentage so we can say that the change in R2 is 45.9% (i.e., .459 x 100 = 45.9%), which is the percentage increase in the variation explained by the addition of the interaction term.

The table also presents that this increase is statistically significant ($p < .005$), a result obtains from the "Sig. F Change" column. Also, the Anova results show that the test is statistically significant as $p<0.005$. This means there is a significant relation between SEC and PE.

Table 56 Regression test for the IT Speciality effect on the relation between SEC and PE

Hypothesis	Unstandardized Coefficients (B)	Standardized path coefcient (β)	t- value	P-value	95.0% Confidence Interval	Support
SEC->PE	.5385	0.6515	16.942	.000	.4755 <Value<.6015	Yes

Table 56 shows the Hypothesis testing results, including the standardized path coefficient (β), t value, and P level and the test has a significant relationship when the t value>1.96 and p>0.05(Cheng et al., 2015). As shown in Table 27, t -value is 16.942 which is >1.96 and the P-value is .000 i.e., <0.005. It is illustrating that the developed hypothesis as expected SEC has a significant impact on PE with β=0.6515. The Unstandardized Coefficients value shows that for every one unit change in SEC there is a .5835 increase in the PE value, and it is in a 95% chance that in between .4755 to.6015. Hence it is showing that SEC has a significant impact on PE and is varied by IT specialty.

As per the results the β=0.6515 and P <0.001 and t-value=16.942 indicate that SEC has a significant impact which is 46.7% and by introducing IT Speciality the connection has an increase in the variance of 45.9%. These results are consistent with the previous results presented in the literature(Al-Gahtani, 2016; Alrawashdeh et al., 2020; S.-F. Wen, 2017).

4.2.4.2. Analysis on IT Speciality Moderator effect on the connection between EE and BI

H0: The connection between EE and BI not moderated by IT specialty

H1:The connection between EE and BI is moderated by IT specialty

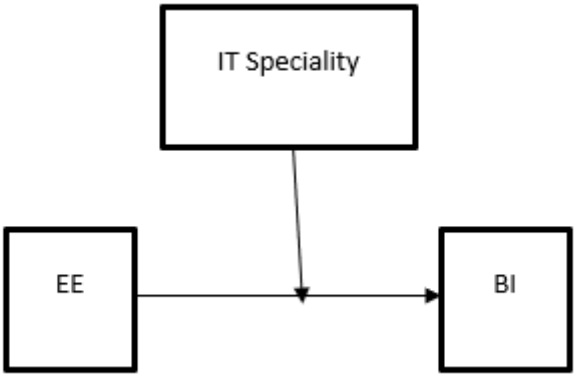


Figure 38 The IT Speciality effect on the relation between EE and BI

The regression test for this scenario is presented in Appendix **A7.2. EE -> BI**.

Table 57 presents the regression test results. The total number of participants for this is 403 with an average mean of 1.57.

Table 57 Regression test statistics for EE->BI moderated by IT Speciality

Statistics							
	Avg. Mean	Avg. Std. Deviation	N	Adjusted R Square	R Square Change	Sig. F Change	Anova
SEC->PE by IT Speciality	1.57	1.126	403	.527	0.531	.000	.000[b]

The "Adjusted R square" value is .527 which means the adjusted R^2 value of 52.7% for this regression implies that the independent variable explains 52.7% of the variation in the dependent variable. The adjusted R-square is the R-square adjusted for the number of parameters. For the addition of a predictor R-square should always increase, perhaps not significantly, but it should increase (Thakur, 2021). Here in the test results after adding the IT specialty the R-square value increased and is more than the adjusted R-square.

"R Square Change", shows the increase in variation explained by the addition of the interaction term. The change in R2 is reported as .531, which is a proportion. More usually, this measure is reported as a percentage so we can say that the change in R2 is 53.1% (i.e., .531 x 100 = 53.1%), which is the percentage increase in the variation explained by the addition of the interaction term.

The table also presents that this increase is statistically significant ($p < .005$), a result obtains from the "Sig. F Change" column. Also, the Anova results show that the test is statistically significant as $p<0.005$.

Table 58 Regression test for the IT Speciality effect on the relation between EE and BI

Hypothesis	Unstandardized Coefficients (B)	Standardized path coefficient (β)	t- value	P-value	95.0% Confidence Interval	Support

EE->BI	.249	0.2585	4.953	.000	.148 <Value<.349	Yes

Table 58 shows the Hypothesis testing results, including the standardized path coefficient (β), t value, and P level and the test has a significant relationship when the t value>1.96 and p>0.05(Cheng et al., 2015). As shown in Table28, t-value is 4.953 which is >1.96 and the P-value is .000 i.e., <0.005. It is illustrating that the developed hypothesis as expected EE has a significant impact on BI with β=0.2585. The Unstandardized Coefficients value shows that for each one-unit change in EE there is a .249 increase in the BI value, and it is in 95% chance that in between 0.148 to 0.349. Hence it is showing that EE has a significant impact on BI and is varied by IT specialty.

As per the results the β=0.2585 and P <0.001 and t-value=4.953 indicate that EE has a significant impact which is 54.7% and by introducing IT Speciality the connection has a variance of 53.1%. These results are consistent with the previous results presented in the literature(Al-Gahtani, 2016; Alrawashdeh et al., 2020; Y. Li et al., 2011; S.-F. Wen, 2017).

4.2.4.3. Analysis on IT Speciality Moderator effect on the connection between PE and BI

H0: The connection between PE and BI not moderated by IT specialty

H1: The connection between PE and BI is moderated by IT specialty

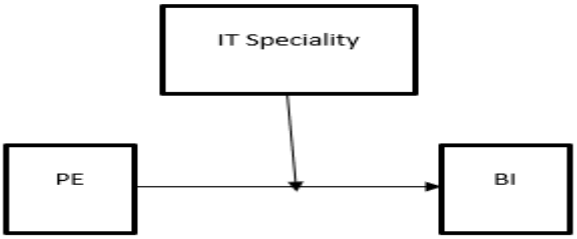


Figure 39 The IT Speciality effect on the relation between PE and BI

The regression test for this scenario is presented in Appendix **A7.3. PE->BI**.

Table 59 presents the regression test results. The total number of participants for this is 403 with an average mean of 1.568.

Table 59 Regression test statistics for PE->BI moderated by IT Speciality

Statistics							
	Avg. Mean	Avg. Std. Deviation	N	Adjusted R Square	R Square Change	Sig. F Change	Anova
SEC->PE by IT Speciality	1.568	1.105	403	.547	0.551	.000	.000[b]

The "Adjusted R square" value is .547 which means the adjusted R^2 value of 54.7% for this regression implies that the independent variable explains 54.7% of the variation in the dependent variable. The adjusted R-square is the R-square adjusted for the number of

parameters. For the addition of a predictor R-square should always increase, perhaps not significantly, but it should increase (Thakur, 2021). Here in the test results after adding the IT specialty the R-square value increased and is more than the adjusted R-square.

"R Square Change", shows the increase in variation explained by the addition of the interaction term. The change in R2 is reported as .551, which is a proportion. More usually, this measure is reported as a percentage so we can say that the change in R2 is 55.1% (i.e., .551 x 100 = 55.1%), which is the percentage increase in the variation explained by the addition of the interaction term.

The table also presents that this increase is statistically significant ($p < .005$), a result obtains from the "Sig. F Change" column. Also, the Anova results show that the test is statistically significant as $p<0.005$.

Table 60 Regression test for the IT Speciality effect on the relation between PE and BI

Hypothesis	Unstandardized Coefficients (B)	Standardized path coefficient (β)	t- value	P-value	95.0% Confidence Interval	Support
SEC->PE	.207	0.206	4.014	.000	.107 <Value<.308	Yes

Table 60 shows the Hypothesis testing results, including the standardized path coefficient (β), t value, and P level and the test has a significant relationship when the t value>1.96 and p>0.05(Cheng et al., 2015). As shown in Table30, t -value is 4.014 which is >1.96 and the P-value is .000 i.e., <0.005. It is illustrating that the developed hypothesis as expected PE has a significant impact on BI with β=0.206. The Unstandardized Coefficients value shows that for each one-unit change in PE there is a .207 increase in the BI value, and it is in 95% chance that in between .107 to.308. Hence it is showing that PE has a significant impact on BI and is varied by IT specialty.
As per the results the β=0.206 and P <0.001 and t-value=4.014 indicate that PE has a significant impact which is 56.3% and by introducing IT Specialty the connection has a variance of 55.1%. These results are consistent with the previous results presented in the literature(Alrawashdeh et al., 2020; Ghapanchi, 2015)

4.3. Results and Discussion

In the preceding section, quantitative analysis results are mentioned in section 4.2 Data analysis is used to determine the meaning of the findings. The researcher explains the significance of the findings (data from the literature and survey responses) in this section. The discussion section's goal is to share the researcher's interpretation of the results, as well as existing understanding and information about the study issue, as well as new views that have arisen as a result of this research.

The subsequent sections establish a link between research questions and literature.

4.3.1. Model reliability

Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. It is considered to be a measure of scale reliability. As per the data analysis test presented in 4.2.1 Cronbach's alpha, the Cronbach's Alpha for all 16 questionnaires is 0.966, indicates excellent reliability, which is consistent with prior literature evaluations which indicate if the alpha value is greater than .85, the reliability is excellent (Bonett & Wright,

2015; Santos, 1999). Hence, it concludes that the proposed research model is a good fit with high reliability.

4.3.2. The link between the Literature, Quantitative results, and Sub questions

The goal of this subsection is to define the role of literature in this research to develop the hypothesis.

4.3.2.1. Demographic Characteristics

Table 61 Descriptive statistics of respondents

Demographic Characteristics	Frequencies	Percentage %
Total number of IT professionals age above 18 participants		
Total	403	100
Number of IT people familiar with OSS		
Yes	345	85.6
No	58	14.4
Gender (Highest participant gender)		
Male	220	54.6
Female	111	27.5
Organization (Highest participation organization)		
1-50	95	23.6
1000+	93	23.1
Job Role (Highest participation Organisation)		
Software Engineer	128	31.8
Software Developer	61	15.1
IT Experience (Highest participation Experience)		
1-5 years	166	41.2
5-10 years	97	24.1
Type of Software(Highest participation familiar with)		
OSS	345	85.60%
PS	181	38.00%
Freeware	125	26.30%

Table 61 showing the demographic characteristics of the participants of this survey, this data resulted from the data analysis **4.2.2.1. Demographic Characteristics**. It shows that in a total of 403, 85.6% of people are familiar with OSS. Most of the participants for this survey are males with 54.6% which is 27.1% greater than female participation. The results from the study conducted by Bosu & Sultana(2019) are also showing that female participation is less, and this lack of gender bias is still an ongoing issue.

Participants from small scale (1-50 employee count) and big (1000+) businesses are major respondents for this survey that means small and big organizations are the OSS influencers. Also, results showing that IT professionals with development backgrounds such as software engineers (31.8%) and software developers (15.1%) are more users of OSS. The result table also concluding that low (1-5 years) medium (5-10years) experience people are most respondents who use OSS. In the list of different types of software, IT people are more aware of PS (38%) and freeware(26.3%) after OSS. Fitzgerald & Kenny(2003) research also states that both big and small organizations' motivations to adopt OSS are similar.

The organizational influence, community support, and IT expertise such as development knowledge are some of the key influence factors to adopt the OSS technology.

4.3.2.2. SQ

RQ1.6. Which is more quality software between the OSS vs. PS?

Generally, when quality characteristics of software are considered as a combination of software stability, code quality produced by it, and flexibility to use. Hence for this test, these three questions are used in the descriptive analysis is presented in **4.2.2.2. SQ** and the average values of the frequency characteristics of SQ from the data analysis result are presented below table.

Table 62 Data Analysis results for SQ

Sub Survey Question	Survey Question	Agree rate Frequency	Agree rate Percentage	Strongly Agree rate Frequency	Strongly Agree rate Percentage
R1.6	S18 OSS Vs PS – Stable	171	42.4	48	11.9
	S19 OSS Vs PS – Flexible	182	45.2	64	15.9
	S20 OSS Vs PS – Quality	189	46.9	48	11.9
	Average rates	181	44.48%	54	13.23%

From Table 62 it is illustrating that the combined average Agree" and "Strongly Agree" rate that 235 (181+54) IT professional claims that OSS is quality than PS with 57.71%. Hence, from the results, it is concluded that OSS is more quality than PS.

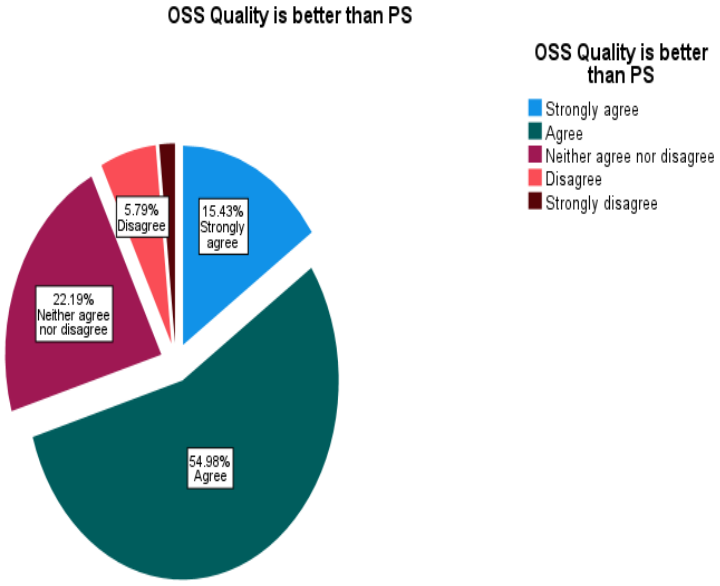


Figure 40 OSS Quality is better than PS

Figure 40 indicating that OSS quality is better than PS from the gathered responses from the data analysis.

According to the majority of participants who responded, they believe the OSS system is of higher quality. Furthermore, the vast majority of respondents felt that OSS solutions are superior to PS technologies in terms of quality based on the result.

This OSS aspect encourages individuals and companies to use OSS. The researchers Aberdour(2007) conducted a thorough examination of 100 OSS applications and discovered that program SQ was greater than expected when compared to PS. Furthermore, Alenezi & Almustafa(2015) research confirmed the aforementioned argument by stating that software evolves and introduces new features that increase SQ. Lee et al.(2009) and Sarrab & Rehman(2014) stating that customers and IT decision-makers are preferring to select OSS products because the product's SQ is high.

Hence, for question RQ1.6. Which is more quality software between the OSS vs. PS? , the result proving that OSS quality is better than PS and these results are consistent with the previous literature(Adewumi et al., 2016; Bahamdain, 2015; Lee, Baek, & Jahng, 2017).

4.3.2.3. SEC

RQ1.5. Which is more secure software between the OSS vs. PS?

The results from the descriptive analysis are presented in **4.2.2.3. SEC**, the average frequency characteristics are presented below table.

Table 63 Data Analysis results for SEC

Sub Survey Question	Survey Question	Agree rate Frequency	Agree rate Percentage	Strongly Agree rate Frequency	Strongly Agree rate Percentage
R1.5	S15 OSS Vs PS – Stable	162	40.2	54	13.4
		Average	43.6%.		

From Table 63 it is illustrating that the combined average “Agree” rate that 216 (162+54) IT professional claims that OSS is secure than PS with 43.6%. Hence, it is concluded that OSS is more secure than PS. these results are consistent with the previous literature(Ajigini et al., 2014; Silic & Back, 2016).

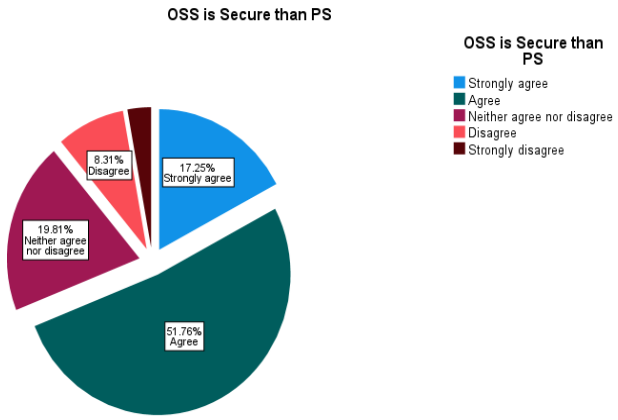


Figure 41 OSS is Secure than PS

Figure 41 illustrating that OSS is secure than PS from the data analysis results.

According to the majority of those answered, OSS users believe that the system is secure. Furthermore, the majority of respondents believe that OSS solutions are more secure than PS technologies.

SEC is a vital aspect in any software development and usage, and most community-based solutions, like OSS, depend on it. Ajigini et al.(2014) highlighted that user considering that the key benefit of using OSS is SEQ rather than CM because when any issue occurs in the code it is easy to open up the code package and modify it and redistribute it but when any issue happens in commercial software users must wait for the vendor's support.

Therefore, for question RQ1.5. Which is more secure software between the OSS vs. PS? , the result proving that OSS secured than PS and these results are consistent with the previous literature(Ajigini et al., 2014; Silic & Back, 2016).

4.3.2.4. PE

RQ1.1. How does OSS adoption affect the IT professional's performance?

For this test, the performance indicators such as effectiveness, productivity, credibility are chosen to measure the OSS performance enhancements and these three questions' average value gives the frequency characteristics of PE as shown in Table 64. The descriptive analysis is presented in **4.2.2.4. PE**. From the result, the frequency characteristics are presented below table.

Table 64 Data Analysis results for PE

Sub Survey Question	Survey Question	Agree rate Frequency	Agree rate Percentage	Strongly Agree rate Frequency	Strongly Agree rate Percentage
R1.1	S12 OSS - Enhances Effectiveness	183	45.4	87	21.6

	S13 OSS - Enhances Productivity	175	43.4	86	21.3
	S21 OSS Vs PS – Credibility	176	43.7	54	13.4
	Average rates	178	44.16	76	18.7

From Table 64 it is illustrating that the combined average "Agree" and "Strongly Agree" rate that 254 (178+76) IT professional claims that OSS is enhanced their performance with 31.43%. Hence, it is concluded that OSS increases the PE of the IT individuals, and these results are consistent with the previous literature (Cai & Zhu, 2016; Ghapanchi & Aurum, 2012).

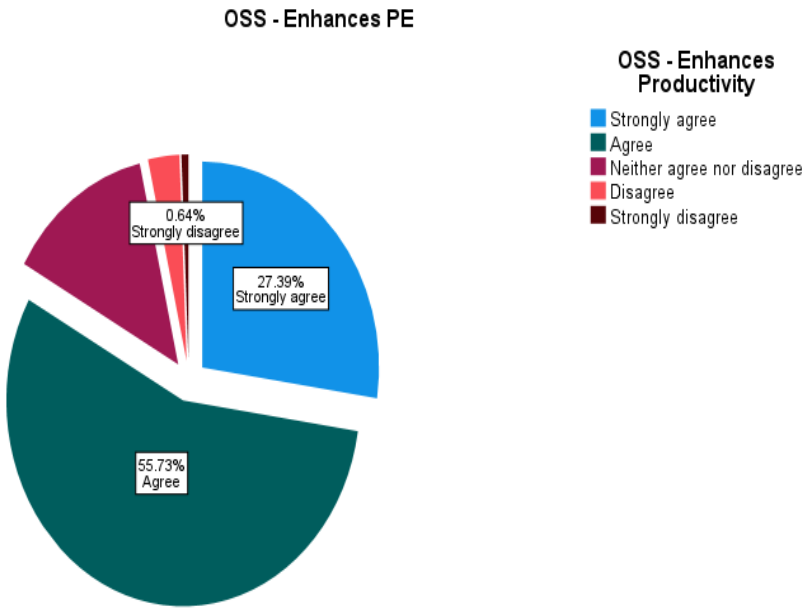


Figure 42 OSS Enhances PE

Figure 42 shows the results from the data analysis.
Based on the current survey results, the majority of IT users agree that OSS enhances their performance. The majority of OSS users, particularly software engineers and developers, believe that it improves their performance.

Performance is critical to user satisfaction. There is a likelihood of acceptance if the system performance is higher. Cai & Zhu(2016) and Ghapanchi(2015) states that OSS user participation, SEQ, and SQ are the influencers of user performance. Ghapanchi & Aurum, (2012) and Kim & Chae(2016) OSS product capabilities can affect user performance. McWilliams(2013) and Wang et al. (2015) the higher the adoption of an open-source product, the greater the possibility of resolving issues, which leads to project performance.

Therefore, for question RQ1.1. How does OSS adoption affect the IT professional's performance? , the result proving that OSS enhances the performance of users, and these results are consistent with the previous literature(Cai & Zhu, 2016; Ghapanchi & Aurum, 2012).

4.3.2.5. EE

RQ1.3. Is OSS easy to learn and adopt by IT Professionals?

For this test, the performance indicators such as effectiveness, productivity, credibility are chosen to measure the OSS performance enhancements and these three questions' average value gives the frequency characteristics of PE as shown in Table 65. The descriptive analysis is presented in **4.2.2.5. EE**. From the result, the frequency characteristics are presented below table.

Table 65 Data Analysis results for EE

Sub Survey Question	Survey Question	Agree rate Frequency	Agree rate Percentage	Strongly Agree rate Frequency	Strongly Agree rate Percentage
R1.3	S12 OSS – Comfortable to use	181	44.9	67	16.6
	S13 OSS – Easy to learn	173	42.9	74	18.4
	Average rates	177	43.9	70.5	17.5

From Table 65 it is illustrating that the combined average “Agree” and “Strongly Agree” rate that 265 (177+88) IT professional claims that OSS is enhanced their EE with 30.7%. Hence, it is concluded that OSS increases the EE of the IT individuals, and these results are consistent with the previous literature(Henrico et al., 2021; Mtebe & Raisamo, 2014).

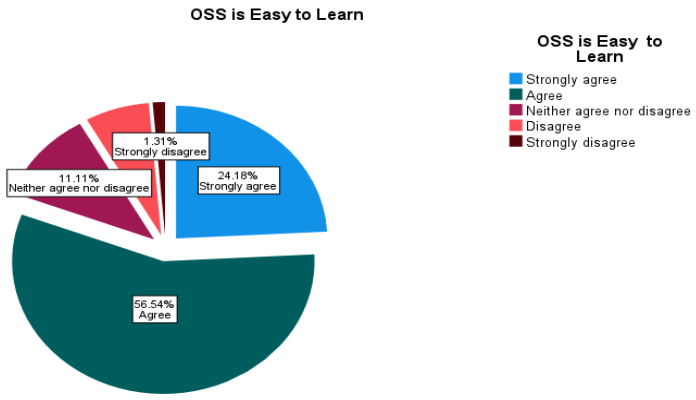


Figure 43 OSS Enhances EE

Figure 43 depicts that OSS is easy to learn from the gathered responses.

According to the majority of those polled, OSS is simple to learn, adaptable, and enjoyable to use. As a result, OSS improves their EE, particularly software engineers with less than 15 years of expertise discover that OSS improves their EE.

Users will use more software if it is simple to understand. Mtebe & Raisamo (2014) argues that using its documentation and community help makes product usage simple. Furthermore, Feller & Fitzgerald (2002) note that the characteristic of OSS source code availability, user guides

assist users in modifying and reusing it as needed. Alrawashdeh et al.(2020) and Henrico et al.(2021) and Zuiderwijk et al. (2015) easy-to-use, learning, guiding, and training approaches are utilized to influence the user's BI for system acceptance. Li et al. (2011) claim that consumers who adopt open source software have intrinsic reasons such as satisfaction from learning and using the software.

Therefore, for question RQ1.3. Is OSS easy to learn and adopt by IT Professionals? the result proving that OSS enhances the performance of users, and these results are consistent with the previous literature(Henrico et al., 2021; Mtebe & Raisamo, 2014).

4.3.2.6. CM

RQ1.4. Is adopting OSS lead to monetary problems for IT Professionals?

For this test, the cost indicators such as cost, and maintenance are chosen to measure the OSS CM and these three questions' average value gives the frequency characteristics of CM as shown in Table 66. The descriptive analysis is presented in **4.2.2.6. CM**. From the result, the frequency characteristics are presented below table.

Table 66 Data Analysis results for CM

Sub Survey Question	Survey Question	Agree rate Frequency	Agree rate Percentage	Strongly Agree rate Frequency	Strongly Agree rate Percentage
R1.4	S16 OSS VS PS-Cost	175	43.4	73	18.1
	S17 OSS VS PS-Maintenance	170	42.2	64	15.9
	Average rates	173	42.8	69	17

From Table 66 it is illustrating that the combined average “Agree” and “Strongly Agree” rate that 265 (173+69) IT professional claims that OSS is cheaper than PS. Hence, it is concluded that OSS cost and maintenance are less when compared to PS, and these results are consistent with the previous literature(Ayala et al., 2011).

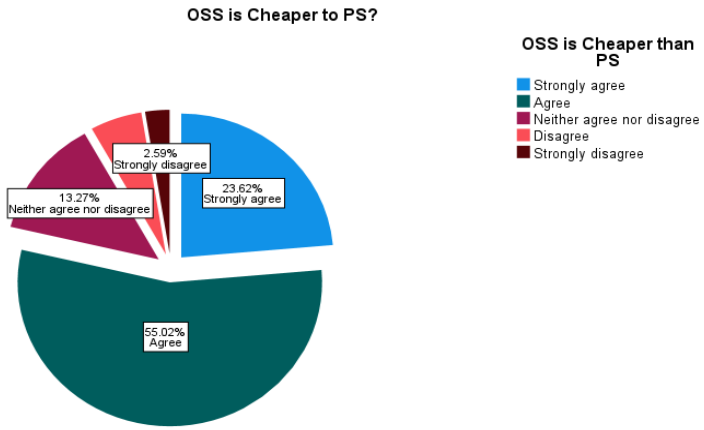


Figure 44 OSS is Cheaper than PS

Figure 44 showing that OSS is cheaper than PS from the data analysis of gathered responses.

According to the majority of those answered, OSS is less expensive and requires less maintenance. In addition, respondents stated that CM of OSS is inexpensive over PS.

Software cost is one of the main factors that impact users' acceptance. Ayala et al.(2011)and Walli et al.(2005) states that the introduction of the OSS has aided individuals and companies in lowering the expenses of IT services. Linåker et al.(2018) and Olson et al. (2018) state that corporations gain from OSS as well because source code is open and customization choices are available. Kamau & Namuye(2012) research states that IT decision-makers and users are aware of the potential economic advantages of OSS, and many public and private organizations have taken the lead in embracing OSS.

Therefore, for question RQ1.4. Is adopting OSS leads to monetary problems for IT Professionals? the result proving that OSS enhances the performance of users, and these results are consistent with the previous literature(Ayala et al., 2011; Henrico et al., 2021; Mtebe & Raisamo, 2014).

4.3.2.7. SI

RQ1.2. How do IT professionals influenced by Individuals or organizations in adopting OSS?

This Social Influence factor is analyzed based on the survey questions on motivations and community support as shown below in Table 67. The descriptive analysis is presented in **4.2.2.7. SI**. From the result, the frequency characteristics are presented below table.

Table 67 Data Analysis results for SI

Sub Survey Question	Survey Question	Agree rate Frequency	Agree rate Percentage
R1.2	S11_1 Motivation for OSS usage - My organization moving towards open source	149	31.0%
	S11_2 Motivation for OSS usage - OSS enables me to accomplish tasks more quickly	149	31.0%
	S22 OSS - Community Support	115	28.4%

Table 67 it is illustrating those 149 (31%) participants agreed that their reason for adopting OSS is Organizational influence and OSS enables them to complete tasks more quickly. 115(28.4%) respondents claim that community support is available when required. So, these two factors showing that SI has a strong influence on IT people to adopt OSS. These findings are supported by the previous literature (Kalliamvakou et al., 2015; Zuiderwijk et al., 2015).

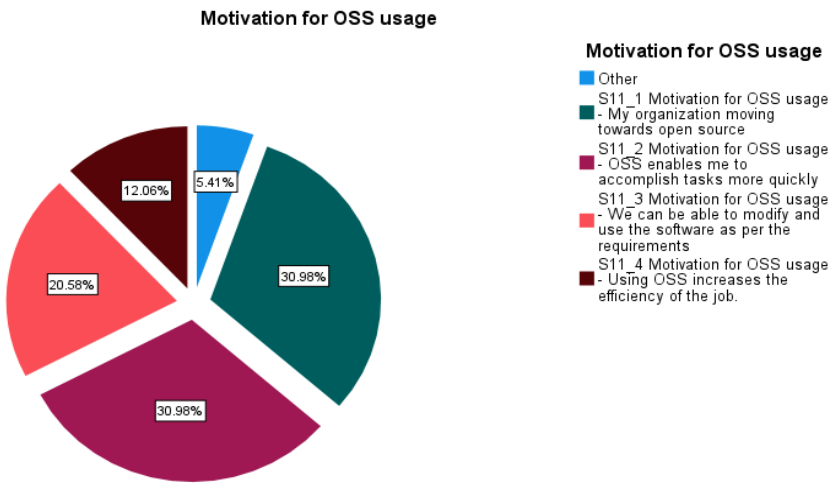


Figure 45 SI on OSS Usage

Figure 45 shows the results from the gathered responses. Organizational Influence is one of the main factors of OSS adoption.

According to the survey results, organizational motivation and community support have the greatest influence on IT users. Employees of both large and small businesses utilize open source software and receive assistance from the open-source community. As a result of these motivations and factors, the number of IT people are willing to adopt OSS.

A lot of factors influence the behavior of OSS users, including intrinsic motivation, attentiveness, and user reputation. Martin(2014) discovered that efforts to promote the use of OSS had a positive effect on adoption. Zuiderwijk et al. (2015) discussed those socioeconomic considerations like usage patterns, user influence, and user involvement are routinely incorporated into the acceptance and use of OSS. According to Choi & Yi (2015) and X. Li, (2018), public awareness information on social platforms such as Open Hub, GitHub, and Source Forge stimulates users to adopt OSS. Companies are also willing to adopt a social collaboration strategy into their activities to influence the result Kalliamvakou et al. (2015).

Therefore, for question RQ1.2. How do IT professionals influenced by Individuals or organizations in adopting OSS?, the result proving that organizational influence and support from the communities are the main factors that impact the users to accept OSS, and these results are consistent with the previous literature(Kalliamvakou et al., 2015; Zuiderwijk et al., 2015).

4.3.2.8. OSS VS PS

RQ1.7. Is OSS product is better than PS?

As per the descriptive analysis results presented in **4.2.2.8. OSS VS PS**, the frequency characteristics are presented below table.

Table 68 Data Analysis results for OSS VS PS

Sub Survey Question	Survey Question	Strongly Agree	Agree	Total	Total Valid participants
R1.7	S14 OSS Vs PS - Comfortable to use	67	181	248	403
	S15 OSS Vs PS – Security	54	162	216	403
	S16 OSS Vs PS – Cost	73	170	243	403
	S17 OSS Vs PS – Maintenance	64	175	239	403
	S18 OSS Vs PS – Stable	48	182	230	403
	S19 OSS Vs PS – Flexible	64	189	253	403
	S20 OSS Vs PS – Quality	48	171	219	403
	S21 OSS Vs PS – Credibility	54	176	230	403
			Average	235	

Table 68 is the results of descriptive analysis is showing that the majority of IT users 235 participants are believing that OSS characteristics are better when compared to the PS.

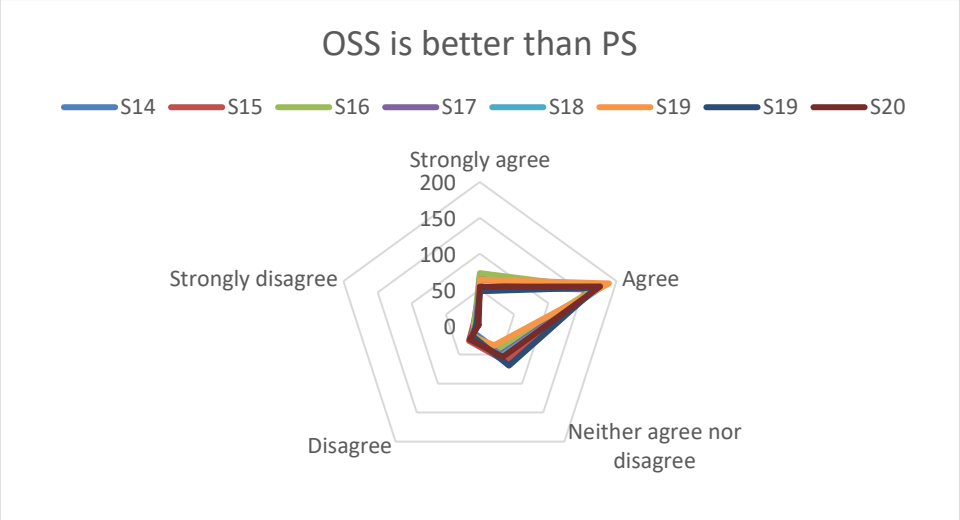


Figure 46 OSS is better than PS

Figure 46 showing the radar chart for the survey questions on OSS VS PS and it is showing that the OSS product is more advantages over PS for all related survey questions.

According to the survey results, the majority of respondents believe that OSS outperforms PS in terms of SQ, SEC, CM, PE, and EE. According to the findings, the majority of organizations are already undertaking OSS adoption in place of PS. As a result, it is fair to assert that OSS is a superior software product.

The debate over which software is superior between PS and OSS is never-ending. Each piece of software has its benefits and drawbacks. Zhu & Zhou(2012) explained how PS faces stiff competition from this OSS. Pinto et al. (2018) stated that many firms and individuals are converting from PS to OSS because of the SQ, lower costs, and greater source code flexibility. Bamhdi(2021) and Odun-Ayo et al. (2018) stated that the adoption of OSS is growing as there is a lot of CM savings.

Therefore, for question RQ1.7. Is the OSS product being better than PS? the result proving that majority of IT professionals believing that OSS is better than PS, and these results are consistent with the previous literature(Bamhdi, 2021; Odun-Ayo et al.,2018; Pinto et al.,2018; Kalliamvakou et al., 2015; Zuiderwijk et al., 2015).

4.3.2.9. OSS

RQ1.8. What is the most popular OSS product using by IT Professionals?

The descriptive analysis is presented in **4.2.2.9.** OSS. From the result, the frequency characteristics are presented below table.

Table 69 Data Analysis results for OSS-Product

Sub Survey Question	Survey Question	Agree rate Frequency	Agree rate Percentage
R1.8	S9_1 OSS Product Linux (Operating system based on UNIX)	175	15.90%

Table 69 presenting that Linux is the top OSS product by 175(15.90%) respondents out of 403 valid responses. Hence, Linux is the most popular OSS product using by IT professionals and these results are consistent with prior studies(Anthes, 2016; Katsamakas & Xin, 2019). According to Gallego, Bueno, Racero, & Noyes(2015), the Linux operating system is open-source software that is used by 96 percent of the population. Anthes(2016) and Katsamakas & Xin(2019) saying that Linux is the most common OSS product used by IT professionals.

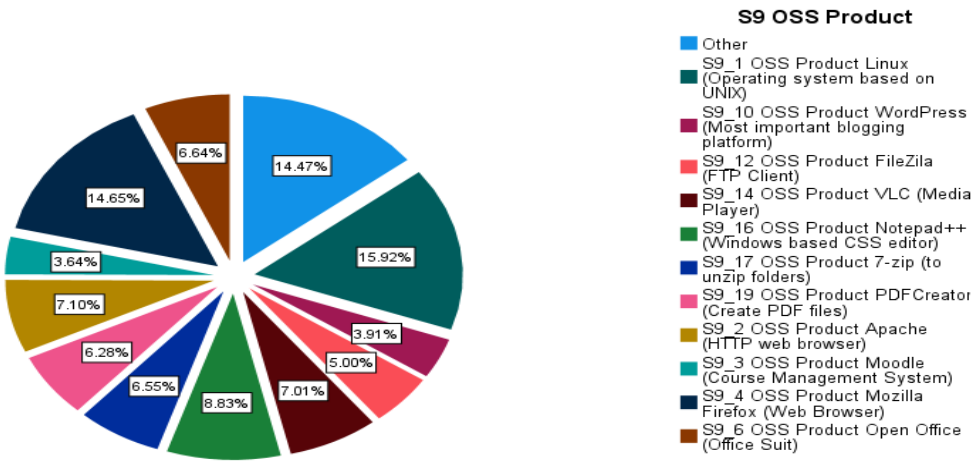


Figure 47 OSS Product

Figure 47, represents that Linux is the Top OSS product using by IT people.

Linux operating systems are the most commonly used OSS software products, according to quantitative statistics. According to the quantitative results, the vast majority of businesses and people are currently utilizing this product in their IT operations.

Hence, for question RQ1.8. What is the most popular OSS is using more by IT Professionals? , the result proving that majority of IT professionals is using Linux operating system, and these results are consistent with the previous literature(Anthes, 2016; Katsamakas & Xin, 2019).

As a conclusion, Table 70 displays the relationship between the literature and the study subjects, sub-topics, and outcomes by summarizing all of the above data.

Table 70 Link between Sub-research questions, Literature, and results

Sub RQ	Description	Literature	Quantitative result	Result
RQ1.1	Does OSS adoption affect the IT professional's performance?	2.9. PE	OSS Enhances Performance	Yes
RQ1.2	How do IT professionals influenced by Individuals or organizations in adopting OSS?	2.8. SI	Organizations and Communities Support Influences the OSS adoption	Yes
RQ1.3	Is OSS easy to learn and adopt by IT Professionals?	2.10. EE	OSS is Easy to learn and use	Yes
RQ1.4	Is adopting OSS lead to monetary problems for IT Professionals?	2.7. CM	OSS technologies are cheaper	Yes
RQ1.5	Which is more secure software between the OSS vs. PS?	2.6. SEC	OSS is more Secured than PS	Yes
RQ1.6	Which is more quality software between the OSS vs. PS?	2.5. SQ	OSS quality is better than PS	Yes
RQ1.7	Is OSS product is better than PS?	2.4. OSS VS PS	OSS product is better than PS	Yes
RQ1.8	What is the most popular OSS is using more by IT Professionals?	2.3. OSS	Linux is Top OSS product	Yes

4.3.3. Hypotheses and Gathered Data

The evaluation of hypotheses is covered in this subsection. Data from surveys and the literature are used to analyze hypotheses.

4.3.3.1. EE -> BI

H1a: EE has a positive impact on the intention to use OSS.
H1b: The connection between and BI will be moderate by IT specialty, and this relationship will be positive among the IT professionals.

Effort expectancy is the factor that influences the intentions of the user to accept any new technology. Alrawashdeh et al.(2020), Henrico et al.(2021), and Zuiderwijk et al.(2015) discussed that software system which is easy to learn and having good documentation then users will accept that system.

According to Chi-square results presented in section **4.2.3.5. Analysis for finding the impact of EE on BI**, EE has a positive impact on the BI to accept OSS as the p-value is statistically significant. Below are the regression test results presented in section **4.2.4.2. Analysis on IT Speciality Moderator effect on the connection between EE and BI**.

As per the results the β=0.2585 and P <0.001 and t-value=4.953 indicate that EE has a significant impact i.e., 52.7% on BI and by introducing moderator the IT Speciality the relation has a variance of 53.1%.

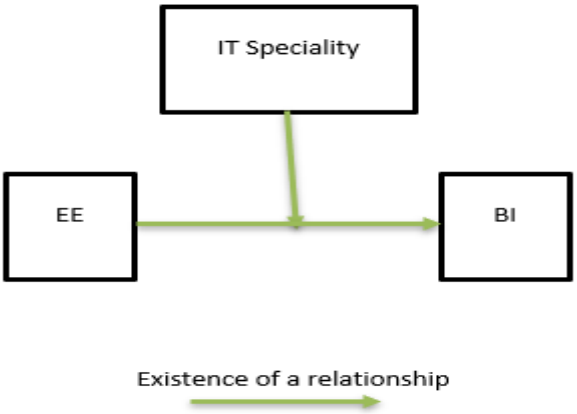


Figure 48 The Relation of EE and BI is moderated by IT Speciality

The existence of a relationship is shown by a green line in Figure 48. Hence the results are concluded that there is a statistically significant impact of EE on BI, and the relation is moderated by IT-Speciality. These results are consistent with the previous results presented in the literature(Gahtani, 2016; Alrawashdeh et al., 2020; Li et al., 2011; Wen, 2017).

The results from the survey showing that the OSS product is very easy to learn and comfortable to use which impacting the BI of users such as frequency of product usage and their satisfaction. Especially, these intentions are moderated by their IT specialties such as experience and Job roles.

4.3.3.2. SI ->BI

H2: SI has a positive impact on the intention to use OSS.
Several studies discovered that the SI factor such as users' motivations and organization influence has a strong impact on system adoption. Zuiderwijk et al.(2015) addressed how the adoption and use of OSS frequently incorporate social considerations such as usage behaviors, user influence and interaction, and organizational influence.

As per the Chi-square results in section **4.2.3.4. Analysis for finding the impact of SI on BI** showed that SI has a positive impact on BI as the p-value is statistically significant with value p<0.001.

4.3.3.3. CM -> BI

H3: CM has a positive impact on the intention to use OSS.

Open source is cost-effective because corporations save money and reduce technical debt by debugging and improving current OSS. OSS usage eliminates huge licensing costs hence it is an alternative solution over costly Linåker et al.(2018) and Olson et al. (2018) said that businesses gain from OSS though because source code is open and customizable options are available.

From the quantitative data, the Chi-Square test results are presented in section **4.2.3.6. Analysis for finding the impact of CM on BI** illustrates that CM has a positive impact on BI with a p-value <0.001which is statistically significant.

4.3.3.4. SQ ->PE

H4: There is a significant relationship between OSS's SQ and PE.

OSS allows users to create low-cost, high-quality software whose source code can be reused. By developing high-quality products using OSS the individual performance will be improved. Research on multiple software applications found that the applications developed with OSS have high SQ when compared to PS(Aberdour, 2007).

The Chi-square results in section **4.2.3.2. Analysis for finding the impact of SQ on PE** illustrates that SQ has statistically a positive impact on PE with a p-value <0.001.

4.3.3.5. SEC ->PE

H5a: Software SEC will have a positive impact on the PE of OSS.
H5b: IT specialty moderates the relationship between software SEC and PE

The OSS has the main benefit is security, when any issue is found in code it is possible to open the back-end code and fix the issue at a faster rate but if any problem occurs in PS users must wait for the vendor support (Ajigini et al., 2014).

According to Chi-square results presented in section **4.2.3.1. Analysis for finding the impact of SEC on PE**, EE has a positive impact on the BI to accept OSS as the p-value is statistically significant. variation which is obtained in the regression test results **4.2.4.1. Analysis on IT Speciality Moderator effect on the connection between SEC and PE**.

As per the results the β=0.6515 and P <0.001 and t-value=16.942 indicate that SEQ has a significant impact which is 45.7% on PE and by introducing an IT Speciality moderator this relationship is positively impacted with 45.9% variance.

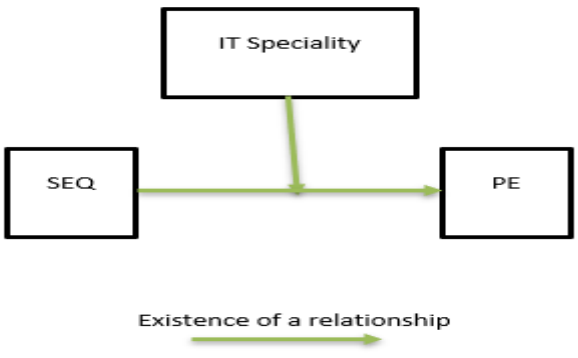


Figure 49 The Relation of SEQ and PE is moderated by IT Speciality

The existence of a relationship is shown by a green line in Figure 49. Hence the results are concluded that there is a statistically significant impact of SEQ on PE and the relation is

moderated by IT-Speciality. These results are consistent with the previous results presented in the literature(Gahtani, 2016; Alrawashdeh et al., 2020; Wen, 2017).

4.3.3.6. PE ->BI

H6a: The PE has a positive impact on the BI to use OSS
H6b: The relationship between BI and PE to be stronger among the IT people, and IT specialty moderates this relationship.

According to Chi-square results presented in section ***4.2.3.3.*** **Analysis for finding the impact of PE on BI**, EE has a positive impact on the BI to accept OSS as the p-value is statistically significant. This relationship is positively moderated by IT specialty with 55.1% variation which is obtained in the regression test results

4.2.2.1. Demographic Characteristics

S1:

Table 10 Number of participants responded with IT specialty and age above 18

S1 IT Pro & Age>18					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	403	100.0	100.0	100.0

As per above Table 10 shows that 403 valid participants responded to this survey with IT as a specialty and age above 18.

Table 11 Description of respondents for S1 by different Gender groups

S1 IT Pro & Age>18 * S3 Gender Crosstabulation								
			S3 Gender					
			Male	Female	Others	Prefer not to say	NotAnswered	Total
S1 IT Pro & Age>18	Yes	Count	220	111	4	9	59	403
Total		Count	220	111	4	9	59	403
		% of Total	54.6%	27.5%	1.0%	2.2%	14.6%	100.0%

Table 11 showing that the IT participants for this survey are 220 male and 111 Females, 4 other participants, 9 participants who have not responded to their Gender. Therefore, it can be said that females and males have statistical meaning in gender groups in this survey and males participated in this survey more than females (27.1% higher).

Figure 9 Bar graph for showing the frequency of respondents for S1 with different Gender groups

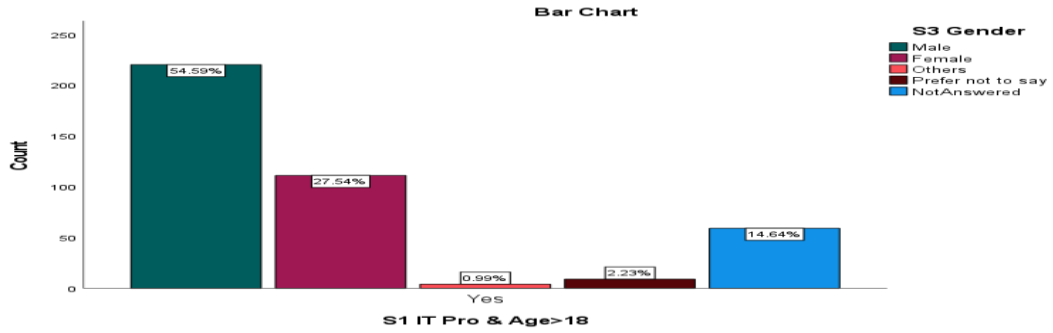


Figure 9 shows that males are the highest IT participants in this survey with 54.6% when compared to females whose participant percentage is 27.5% only. There is 1.0 % of other gender participation and 2.2% prefer not to reveal their gender. 14.% of participants responded but were not interested to respond to the question S3 Gender.

S2:

Table 12 Frequencies of participants who familiar with OSS

S2 Familiar with OSS?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	345	85.6	85.6	85.6
	No	58	14.4	14.4	100.0
	Total	403	100.0	100.0	

Table 12 shows that out of 403 valid IT participants 345 people with 85.6% are aware of OSS and only 58 participants with 14.4% do not know OSS. So, this states that the survey is statistically significant that the majority of the IT participants know the OSS software type.

Table 13 Description of respondents for S2 by different Gender groups

S2 Familiar with OSS? * S3 Gender Crosstabulation								
			S3 Gender					
			Male	Female	Others	Prefer not to say	NotAnswered	Total
S2 Familiar with OSS?	Yes	Count	220	111	4	9	1	345
		% of Total	54.6%	27.5%	1.0%	2.2%	0.2%	85.6%
	No	Count	0	0	0	0	58	58
		% of Total	0.0%	0.0%	0.0%	0.0%	14.4%	14.4%
Total		Count	220	111	4	9	59	403
		% of Total	54.6%	27.5%	1.0%	2.2%	14.6%	100.0%

Table 13 shows that 220 males and 111 Female, 4 other participants know OSS, 9 participants who are familiar with OSS do not want to reveal their gender and there are 59 participants not answered for the gender in that 58 people do not know OSS and 1 person knows OSS.

Figure 10 Bar graph for showing the frequency of respondents for S2 with different Gender groups

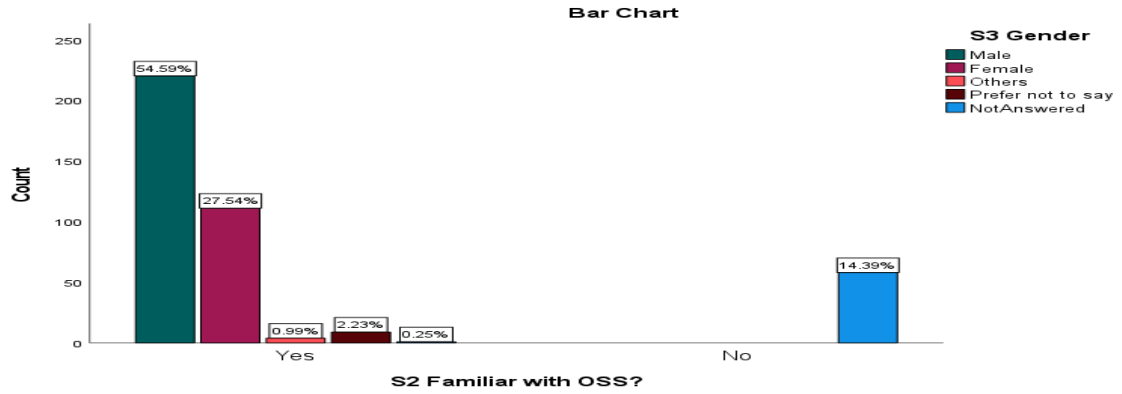


Figure 10 shows that 54.6% male,27.5% Female, 1%, 2.2 % prefer not to say their gender, and 0.2 % of No respondents to gender are known about OSS. 14.4% of people who are not responded for their gender also do not know what OSS is.

S3

Table 14 Frequencies of participants by their Gender

S3 Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	220	54.6	54.6	69.2
	Female	111	27.5	27.5	96.8
	Others	4	1.0	1.0	97.8
	Prefer not to say	9	2.2	2.2	100.0
	NotAnswered	59	14.6	14.6	14.6
	Total	403	100.0	100.0	

Table 14 showing that 220 males are the highest participants in this survey with 54.6% when compared to 111 female participants whose percentage is 27.5% only. There 4 other gender participation and 9 people are preferring not to reveal their gender. 59 IT participants responded to the survey but were not interested to respond to the question S3 Gender.

S4

Table 15 Frequencies of participants for their working organizations employee count

S4 Total Employee Count in the Organisation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-50	95	23.6	23.6	40.0
	51-100	71	17.6	17.6	57.6
	101-500	51	12.7	12.7	70.2
	501-1000	27	6.7	6.7	76.9
	1000+	93	23.1	23.1	100.0
	NotAnswered	66	16.4	16.4	16.4
	Total	403	100.0	100.0	

Table 15 presenting that the small organization with employees count1-50 are the top respondents of this survey having 95 responses with 23.6%. The next participation group is from the big organization (1000+) with 93responses (23.1%). The next level of participation is 71 responses from 51-100, 51 responses from501-1000, and 27 responses from501-1000 employee count organisations.66 participants i.e. 16.4% are not interested to respond for their organization level.

Table 16 Frequencies of respondents from different levels of Organizations

S4 Total Employee Count in the Organisation * S2 Familiar with OSS? Crosstabulation				
Count				
		S2 Familiar with OSS?		
		Yes	No	Total
S4 Total Employee Count in the Organisation	1-50	95	0	95
	51-100	71	0	71
	101-500	51	0	51
	501-1000	27	0	27
	1000+	93	0	93
	NotAnswered	8	58	66
Total		345	58	403

Table 16 shows that the participants from the small (1-50) and big corporations (1000+) know OSS with 23.57% and 23.08% respectively and are very close. 58 (14.39%) respondents who do not want to state their organization does not know about OSS and only 8 respondents know OSS from this group. Remaining participants who in 51-100, 101-500, and 501-1000 are known about OSS with 17.62%,12.66%, and 6,70% respectively. Hence, it is concluding that small (1-50) and big (1000+) organization employees are statistically significant for this survey and is influencing IT professional to use OSS in their work.

Figure 11 Bar chart for Frequencies of respondents from different levels of Organizations

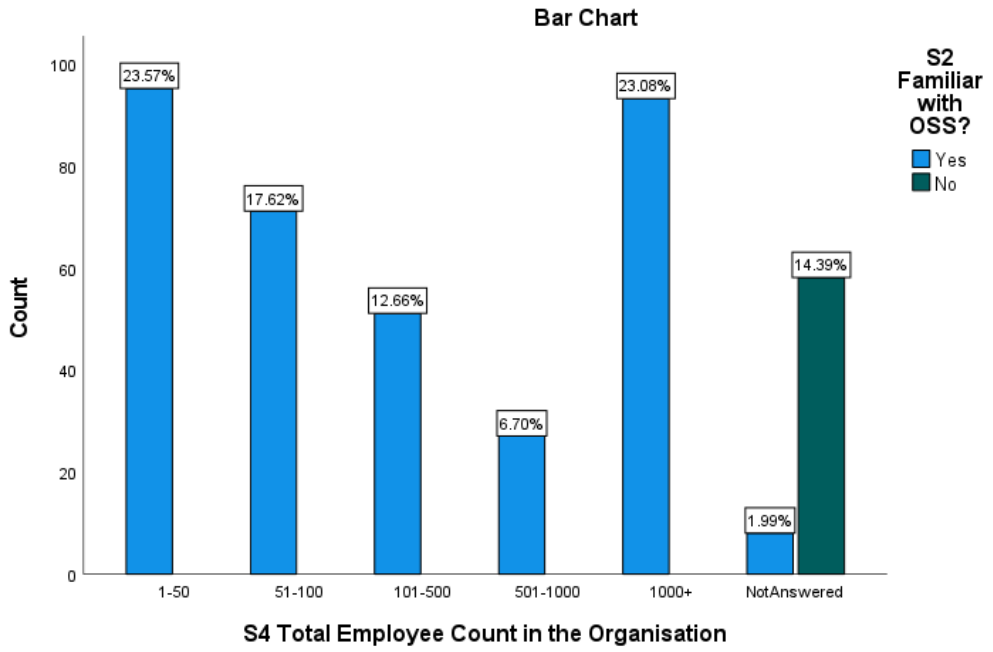


Figure 11 representing the graphical view of the data presented in Table 16.

S5

Table 17 Frequencies of respondents on their Job role

S5 Current Job Role					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Software Engineer	128	31.8	31.8	47.9
	Software Developer	61	15.1	15.1	63.0
	Testing Engineer	27	6.7	6.7	69.7
	System Administrator	27	6.7	6.7	76.4
	Team Lead	41	10.2	10.2	86.6
	Software Architect	19	4.7	4.7	91.3
	Project Manager	20	5.0	5.0	96.3
	IT Service Management	3	.7	.7	97.0
	Business Analyst	2	.5	.5	97.5
	IT Finance	2	.5	.5	98.0
	Director	2	.5	.5	98.5
	Digital Marketing	3	.7	.7	99.3
	Learning Management	2	.5	.5	99.8
	None	1	.2	.2	100.0
	NotAnswered	65	16.1	16.1	16.1
	Total	403	100.0	100.0	

Table 17 presenting that the participants with Job role Software Engineers are most of this survey fallowed by Software developers. The remaining all participants are with different Job roles as shown in the table with their participation in ascending order. It is showing that 65(16.1%) participants are not interested to respond to their Job roles.

Table 18 Frequencies of respondents with a different type of job role

S5 Current Job Role * S2 Familiar with OSS? Crosstabulation				
Count				
		S2 Familiar with OSS?		
		Yes	No	Total
S5 Current Job Role	Software Engineer	128	0	128
	Software Developer	61	0	61
	Testing Engineer	27	0	27
	System Administrator	27	0	27
	Team Lead	41	0	41
	Software Architect	19	0	19
	Project Manager	20	0	20
	IT Service Management	3	0	3
	Business Analyst	2	0	2
	IT Finance	2	0	2
	Director	2	0	2
	Digital Marketing	3	0	3
	Learning Management	2	0	2
	None	1	0	1
	NotAnswered	7	58	65
Total		345	58	403

Figure 12 Bar chart for the frequencies of respondents with a different type of job role

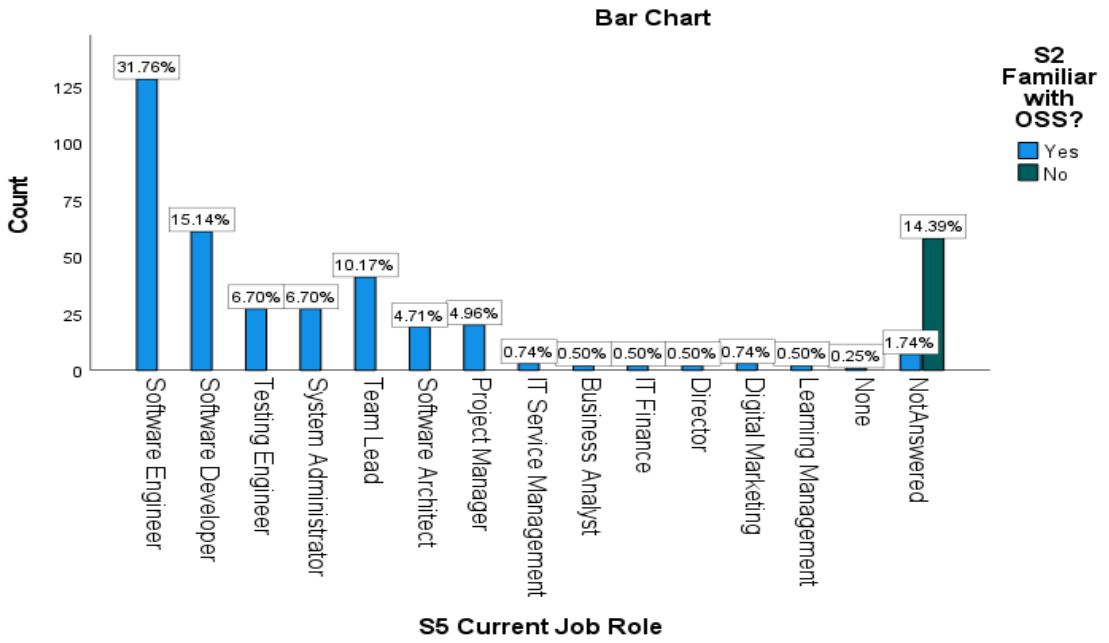


Table 18 and Figure 12, it is illustrating that the majority of the respondents who know about OSS are Software Engineers with 31.76% and is 16.62% higher than Software developers. The 14.39% of participants who do not want to state their Job role claimed that they do not know OSS. Team leaders are the next group with a participant ratio of 10.17% followed by Tested and System admin with 6.7%. Hence it is concluding that Job role influences the choice of using OSS.

S6

Table 19 Frequencies of participants on their Experience

S6 Experience					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 years	166	41.2	41.2	57.3
	5-10 years	97	24.1	24.1	81.4
	10-15 years	46	11.4	11.4	92.8
	15 +	29	7.2	7.2	100.0
	NotAnswered	65	16.1	16.1	16.1
	Total	403	100.0	100.0	

Table 19 showing that 1-5 years' experience people are many respondents with 166(41.2%) which is 17.1% greater than the 5-10 years' experience group. The people with more than 15+ years of experience are the least participants group in this survey with 7.2 %. 16.1 % of respondents are not interested to talk about their level of experience. Hence, it is concluding that a low level of professional experience is more interested to participate in an IT survey.

Table 20 Frequencies of respondents with different Experience levels

S6 Experience * S2 Familiar with OSS? Crosstabulation		
Count		
	S2 Familiar with OSS?	Total

		Yes	No	
S6 Experience	1-5 years	166	0	166
	5-10 years	97	0	97
	10-15 years	46	0	46
	15 +	29	0	29
	NotAnswered	7	58	65
Total		345	58	403

Figure 13 Bar chart for Frequencies of respondents with different Experience level

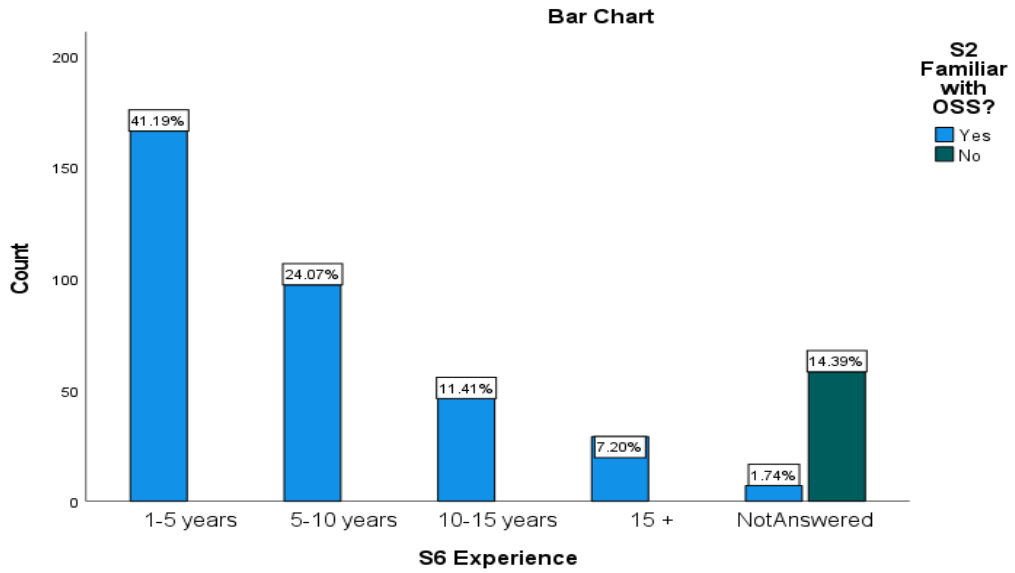


Table 20 and Figure 13 illustrating those 1-5 years experienced participants are more aware of OSS with 166 responses(41.19%). The high-level experience participants are the least bother about the software they are using, and their participation is 7.20%. 14.39 % of people are familiar with OSS, but they do not want to respond on their level of experience. Hence, it is concluding that low-level experience is significantly influencing the choice of using OSS.

S7

Table 21 Number of participants for the type of Software they know

Case Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
$S7[a]	305	75.7%	98	24.3%	403	100.0%
a. Dichotomy group tabulated at value 1.						

Table 21 showing that 305 participants are responded to the type of software they are aware of.

Table 22 Frequencies of respondents on the type of software

$S7 Frequencies				
		Responses		
		N	Percent	Percent of Cases
S7 Type of Software	S7_1 Type of Software – PS	181	38.0%	59.3%
	S7_3 Type of Software - Pirated Software	86	18.1%	28.2%
	S7_4 Type of Software – Freeware	125	26.3%	41.0%
	S7_6 Type of Software – NotAnswered	84	17.6%	27.5%
Total		476	100.0%	156.1%
a. Dichotomy group tabulated at value 1.				

Table 22 illustrating that majority of the participants(180) know about PS with 38% which is 11.7% greater than the 125 participants who know freeware. 84(17.6%) people are not interested to respond to this question. The table, it is showing that 476 as total because this is a cumulative count of 403 respondents who selected multiple responses. Hence, it is concluding that other than OSS people are more aware of PS and freeware software types. As per S2, 345 participants know about OSS which means OSS is the majority type of software that IT professionals are aware of.

Figure 14 Stacked Bar chart for Type of Software used by different Job roles

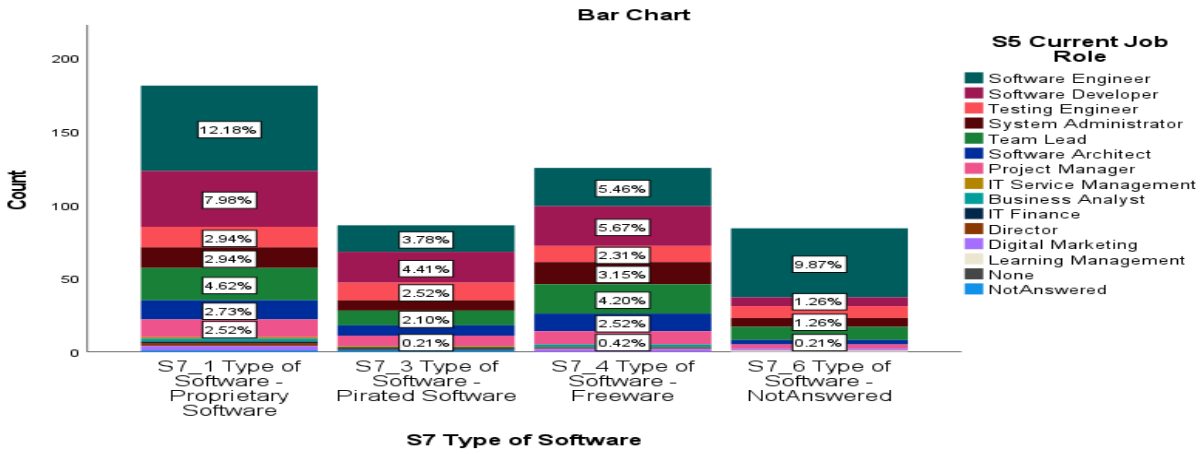


Figure 14 illustrating that participants with different Job roles awareness on the type of software other than OSS. Software engineers are the majority participant rate know about PS and Software developers are the majority participant group who knows freeware and is very slightly higher than Software engineer group. Therefore, it is stating that IT professional job role influences the type of software they chose in their work.

Figure 15 Stacked Bar chart for Type of Software used by different Organisations

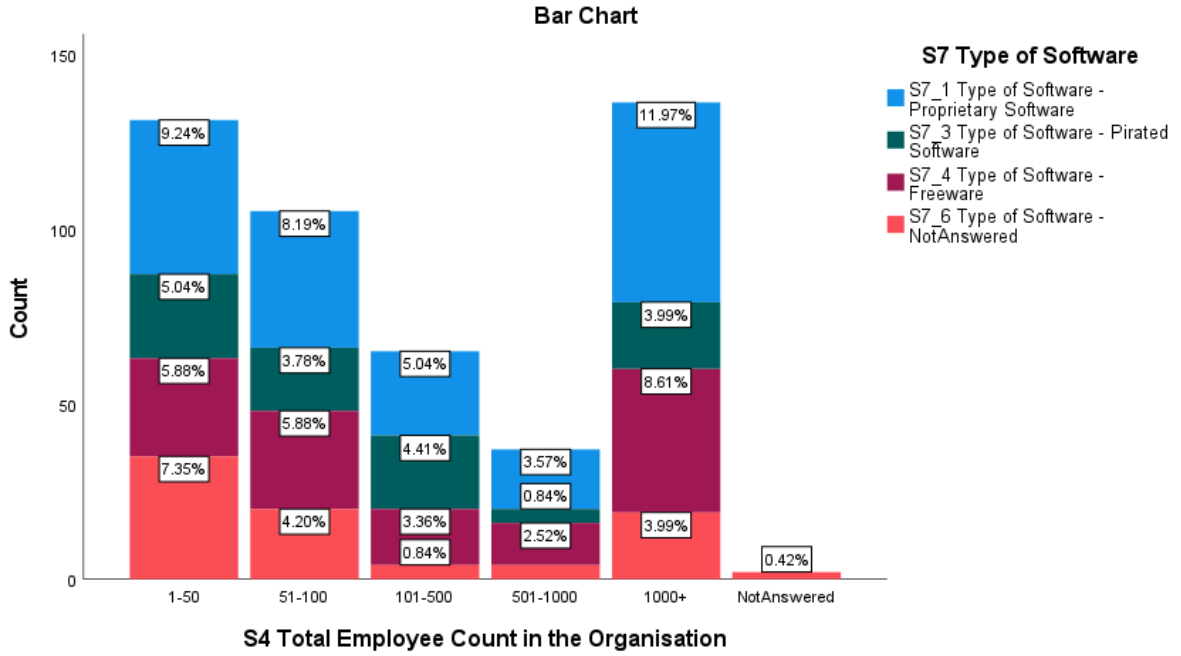


Figure 15 illustrating that participants from big organizations (1000+) are most aware of PS which is 3.36% more when compared to participants who are aware of freeware(8.61%). Also, participants from small companies are having more awareness on PS like 1-50 with 9.24% and 50-100 with 8.19%. The orange color in the graph shows that many participants do not want to comment about their organization and the type of software they are aware of. Freeware is the next type of software that participants from different organizations are aware of. Hence, it concludes that organization has a significant impact on their employees to choose the type of software.

Figure 16 Stacked Bar chart for Type of Software used by different Experience level

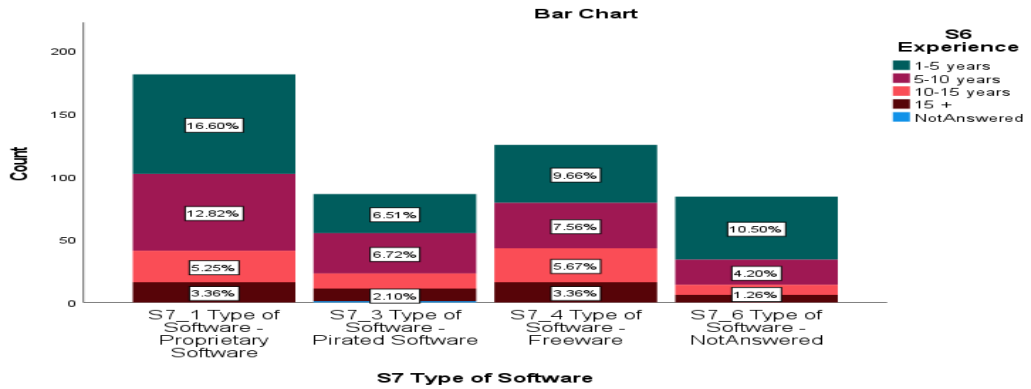


Figure 16 illustrating that participant with experience level 1-5 years are the majority level who knows PS with 16.60% which is 6.94 % more than the participation level on Freeware and 10.09 % more than Pirated software participants. Hence, as per the figure, it can be concluded

that low-level participation groups are having a significant effect on the type of software they are aware of

4.2.2.2. SQ

Table 23 Number of participants for OSS characteristics stable, flexible, quality

Table 23 showing the total number of participants for this survey questions

Statistics				
		S18 OSS Vs Closed/Proprietary - Stable	S19 OSS Vs Closed/Proprietary - Flexible	S20 OSS Vs Closed/Proprietary - Quality
N	Valid	403	403	403
	Missing	0	0	0
Mean		1.69	1.59	1.72
Median		1.73[a]	1.60[a]	1.78[a]
a. Calculated from grouped data.				

S18: OSS is generally more stable than PS

Table 24 Frequency tables for Stable

S18 OSS Vs Closed/Proprietary - Stable					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NotAnswered	94	23.3	23.3	23.3
	Strongly agree	48	11.9	11.9	35.2
	Agree	182	45.2	45.2	80.4
	Neither agree nor disagree	52	12.9	12.9	93.3
	Disagree	22	5.5	5.5	98.8
	Strongly disagree	5	1.2	1.2	100.0
	Total	403	100.0	100.0	

Table 24 illustrates that which software is more quality between OSS and PS. Most of the IT professionals chose “Agree” 45.2% and 11.9% population strongly that OSS is more stable than PS and 1.2% strongly disagrees with that opinion. 12.9% of People chose “Neither agree nor disagree” and 23.3% of people are not interested to respond this question. So overall, the total of strongly agree and agree is 45.2+11.9=57.1% are claiming that OSS is more stable than PS.

Figure 17 Bar chart for OSS VS PS - Stable

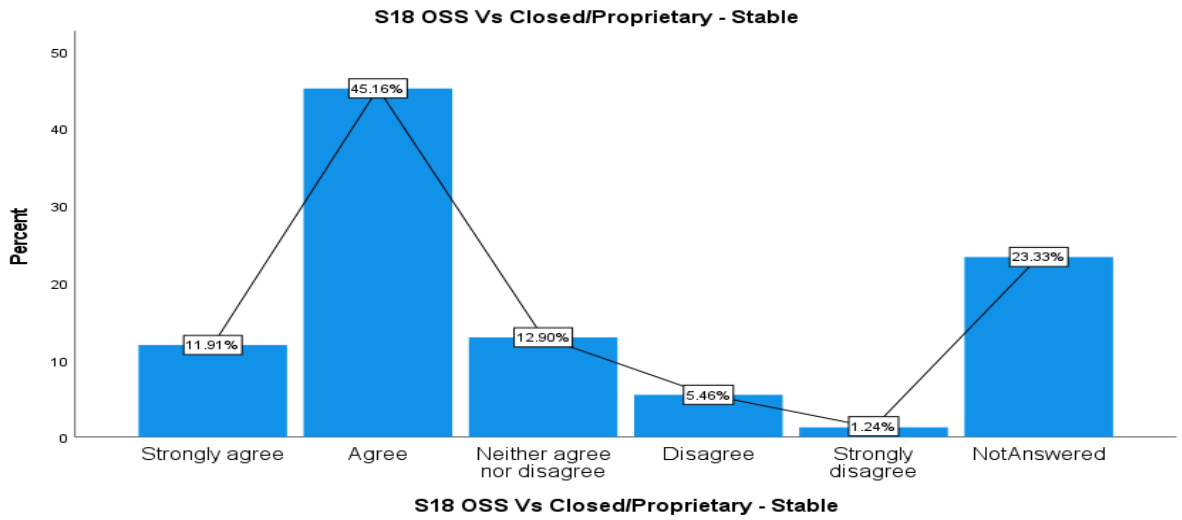


Figure 17 presenting that most IT people believing that OSS is more stable than PS with Agree rate of 45.16%.

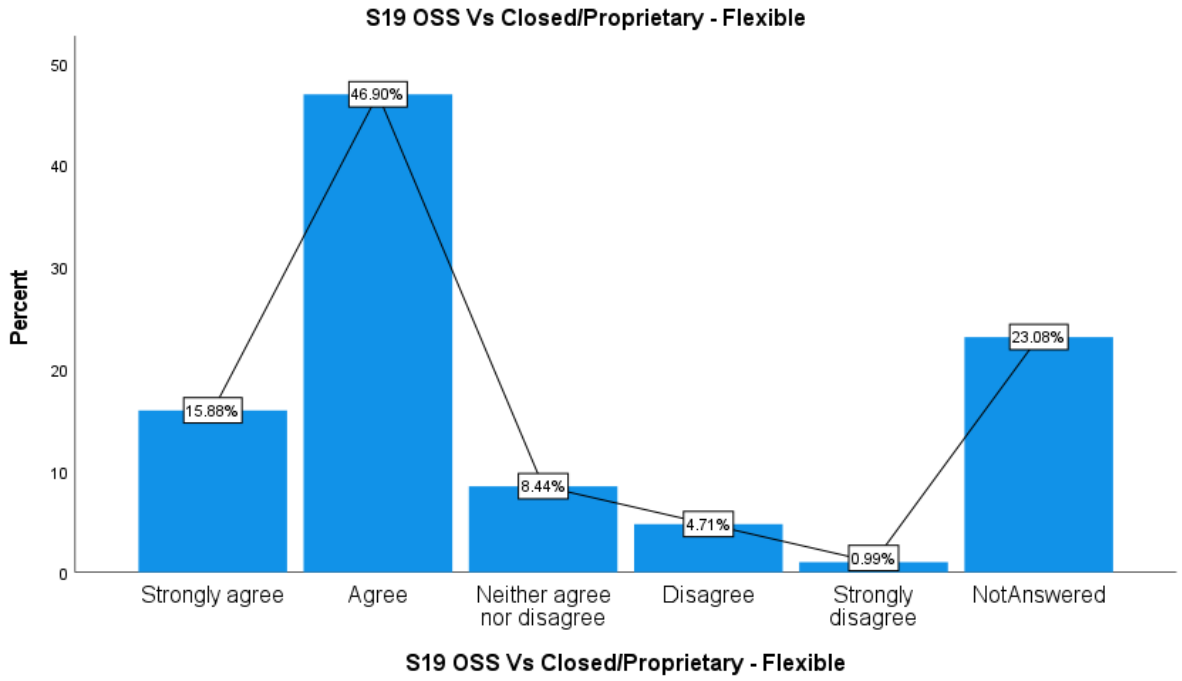
S19: OSS is generally more flexible than PS

Table 25 Frequency tables Flexible

S19 OSS Vs Closed/Proprietary - Flexible					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NotAnswered	93	23.1	23.1	23.1
	Strongly agree	64	15.9	15.9	39.0
	Agree	189	46.9	46.9	85.9
	Neither agree nor disagree	34	8.4	8.4	94.3
	Disagree	19	4.7	4.7	99.0
	Strongly disagree	4	1.0	1.0	100.0
	Total	403	100.0	100.0	

Table 25 illustrates those frequencies for which software is more quality between OSS and PS. Most of the IT professionals chose “Agree” 46.9% as shown in Figure 18 and 15.9% population strongly that OSS is more stable than PS and 1.2% strongly disagrees with that opinion. 8.4% of People chose “Neither agree nor disagree” and 23.1% of people are not interested to respond this question. So overall, the total of strongly agree and agree is 46.9+15.9=61.8% are claiming that OSS is more flexible than PS.

Figure 18 Bar chart for OSS VS PS - Flexible



S20. OSS is generally more Quality than PS

Table 26 Frequency tables for Quality

S20 OSS Vs Closed/Proprietary - Quality					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NotAnswered	92	22.8	22.8	22.8
	Strongly agree	48	11.9	11.9	34.7
	Agree	171	42.4	42.4	77.2
	Neither agree nor disagree	69	17.1	17.1	94.3
	Disagree	18	4.5	4.5	98.8
	Strongly disagree	5	1.2	1.2	100.0
	Total	403	100.0	100.0	

Figure 19 Bar chart for OSS VS PS - Quality

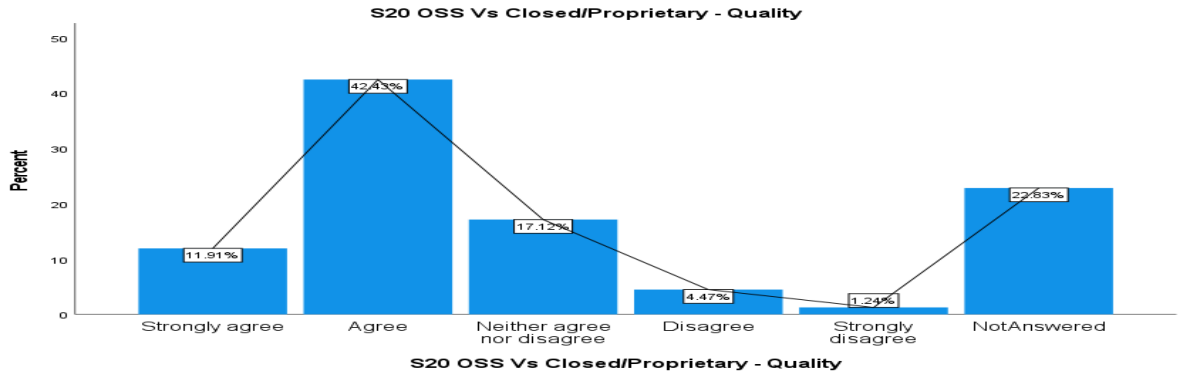


Table 26 illustrates those frequencies for which software is more quality between OSS and PS. Most of the IT professionals chose “Agree” 42.43% as shown in Figure 19 and 11.91% population strongly that OSS is more stable than PS and 1.24% strongly disagrees with that

opinion. 17.12% of People chose “Neither agree nor disagree” and 22.8% of people are not interested to respond this question. So overall, the total of strongly agree and agree is 42.43+11.91=54.34% are claiming that OSS is more Quality than PS.

4.2.2.3. SEC

Frequencies

Table 27 Number of participants for OSS Security

S15: OSS is generally more secure than PS

Statistics		
S15 OSS Vs Closed/Proprietary - Security		
N	Valid	403
	Missing	0
Mean		1.77
Median		1.78[a]
a. Calculated from grouped data.		

Table 27 shows the total number of respondents for this survey is 403.

Table 28 Frequencies of respondents of OSS security

S15 OSS Vs Closed/Proprietary - Security					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	54	13.4	13.4	35.7
	Agree	162	40.2	40.2	75.9
	Neither agree nor disagree	62	15.4	15.4	91.3
	Disagree	26	6.5	6.5	97.8
	Strongly disagree	9	2.2	2.2	100.0
	NotAnswered	90	22.3	22.3	22.3
	Total	403	100.0	100.0	

Figure 20 Bar chart for OSS Security

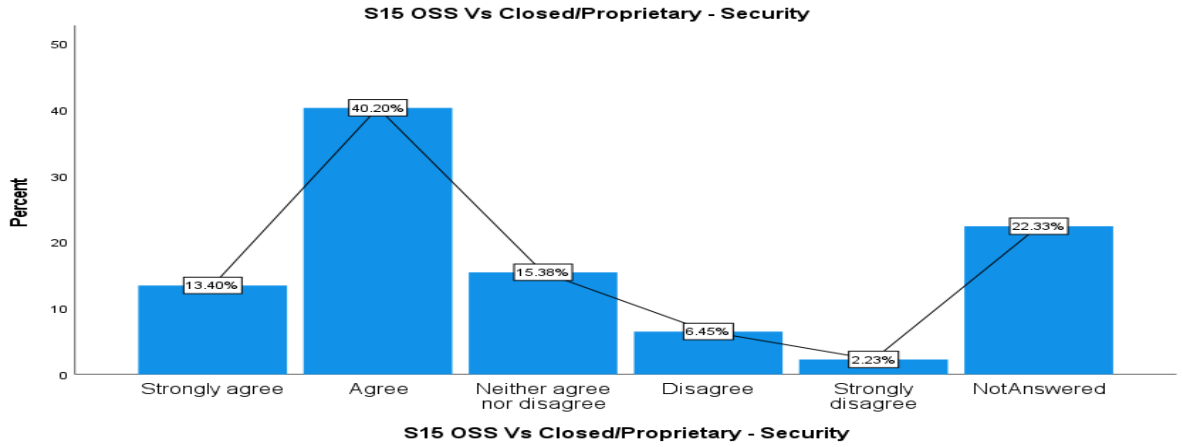


Table 28 illustrates those frequencies for which software is more secure between OSS and PS. Most of the IT professionals chose “Agree” 40.20% as shown in Figure 20 and 13.40% population strongly that OSS is more secure than PS and 2.23% strongly disagrees with that opinion. 15.38% of people chose “Neither agree nor disagree”, 6.45 % are opted for “Disagree” and 22.33% of people are not interested to respond this question. So overall the “Agree” rate is most of this survey and hence the sum of “Strongly agree” and “Agree” is the percentage of participants who conclude that OSS is more secure than PS.

4.2.2.4. PE

Table 29 Number of participants for OSS - PE

Statistics					
		S12 OSS - Enhances Effectiveness	S13 OSS - Enhances Productivity	S21 OSS Vs Closed/Proprietary - Credibility	S24 OSS Modification
N	Valid	403	403	403	403
	Missing	0	0	0	0
Mean		1.56	1.51	1.67	1.56
Median		1.58[a]	1.53[a]	1.71[a]	1.55[a]
a. Calculated from grouped data.					

S12 OSS - Enhances Effectiveness

Table 30Frequency of respondents for OSS Effectiveness

S12 OSS - Enhances Effectiveness					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	87	21.6	21.6	41.4
	Agree	183	45.4	45.4	86.8
	Neither agree nor disagree	38	9.4	9.4	96.3
	Disagree	13	3.2	3.2	99.5
	Strongly disagree	2	.5	.5	100.0
	NotAnswered	80	19.9	19.9	19.9
	Total	403	100.0	100.0	

Figure 21 Bar chart of respondents for OSS Effectiveness

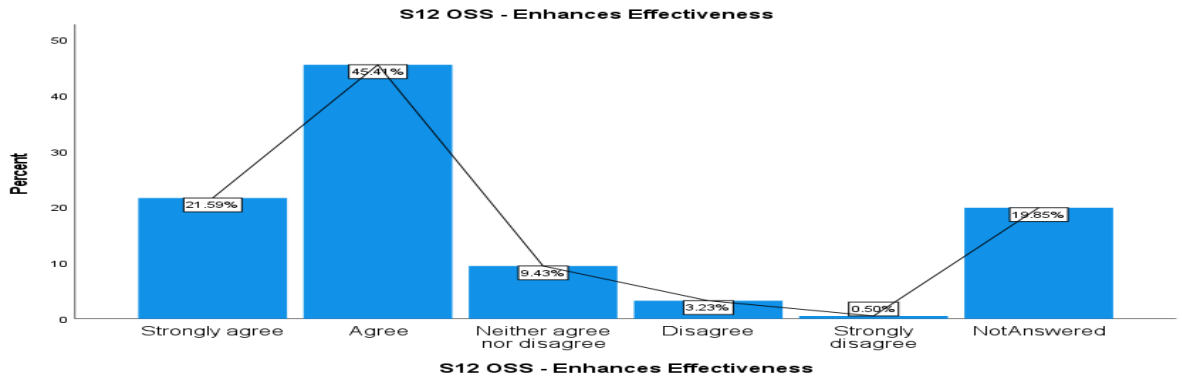


Table 30 illustrates those frequencies for which effectiveness is increased with OSS. Most of the IT professionals chose "Agree" 44.40% as shown in Figure 21. 19.85% are not responded to this survey question. 21.59% strongly believe that OSS enhances their effectiveness, but 3.23% disagree with that and a negligible percentage of 0.5% are strongly disagree with that. 9.43%not mentioned their decision whether it is "Agree or Disagree". Hence, from the analysis, it is concluding that the sum of "Agree" and "Strongly Agree" values showing that the majority of people believe that OSS enhances their effectiveness.

S13 OSS - Enhances Productivity

Table 31 Frequency of respondents for OSS Productivity

S13 OSS - Enhances Productivity					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	86	21.3	21.3	43.4
	Agree	175	43.4	43.4	86.8
	Neither agree nor disagree	42	10.4	10.4	97.3
	Disagree	9	2.2	2.2	99.5
	Strongly disagree	2	.5	.5	100.0
	NotAnswered	89	22.1	22.1	22.1
	Total	403	100.0	100.0	

Figure 22 Bar chart of respondents for OSS Productivity

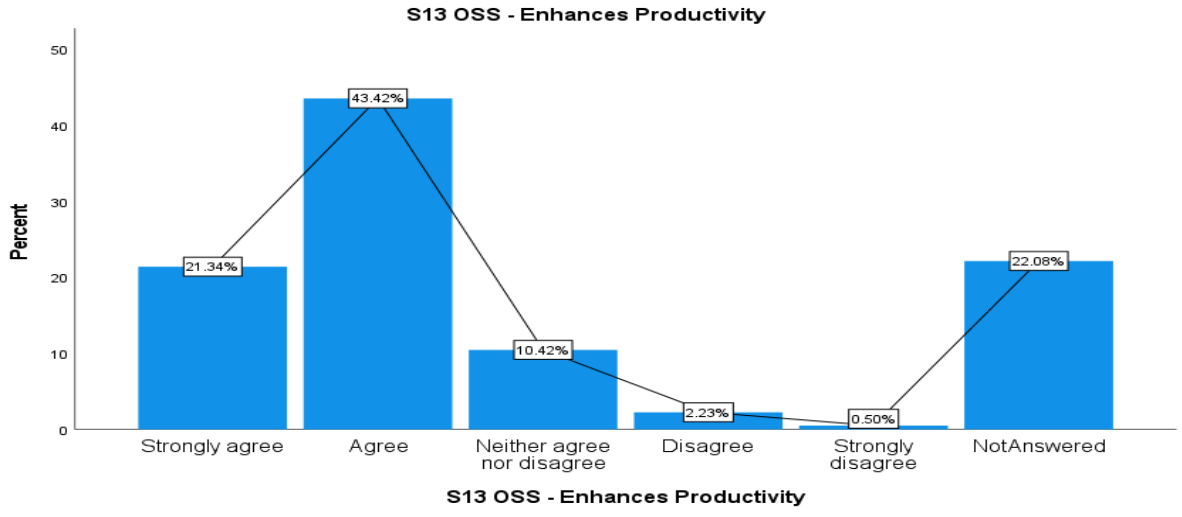


Table 31 illustrates those frequencies for which productivity is increased with OSS. Most of the IT professionals chose “Agree” 43.42% as shown in Figure 22. 22.08% are not responded to this survey question. 21.34% strongly believe that OSS enhances their productivity, but 2.23% disagree with that and a negligible percentage of 0.5% are strongly disagree with that. 10.42% not mentioned their decision whether it is “Agree or Disagree”. Hence, from the analysis, it is concluding that the sum of “Agree” and “Strongly Agree” values showing that the majority of people believe that OSS enhances their effectiveness.

S21 OSS Vs Closed/Proprietary - Credibility

Table 32Frequency of respondents for OSS Credibility

S21 OSS Vs Closed/Proprietary - Credibility					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	54	13.4	13.4	36.5
	Agree	176	43.7	43.7	80.1
	Neither agree nor disagree	54	13.4	13.4	93.5
	Disagree	24	6.0	6.0	99.5
	NotAnswered	93	23.1	23.1	23.1
	Strongly disagree	2	.5	.5	100.0
	Total	403	100.0	100.0	

Figure 23 Bar chart of respondents for OSS Credibility

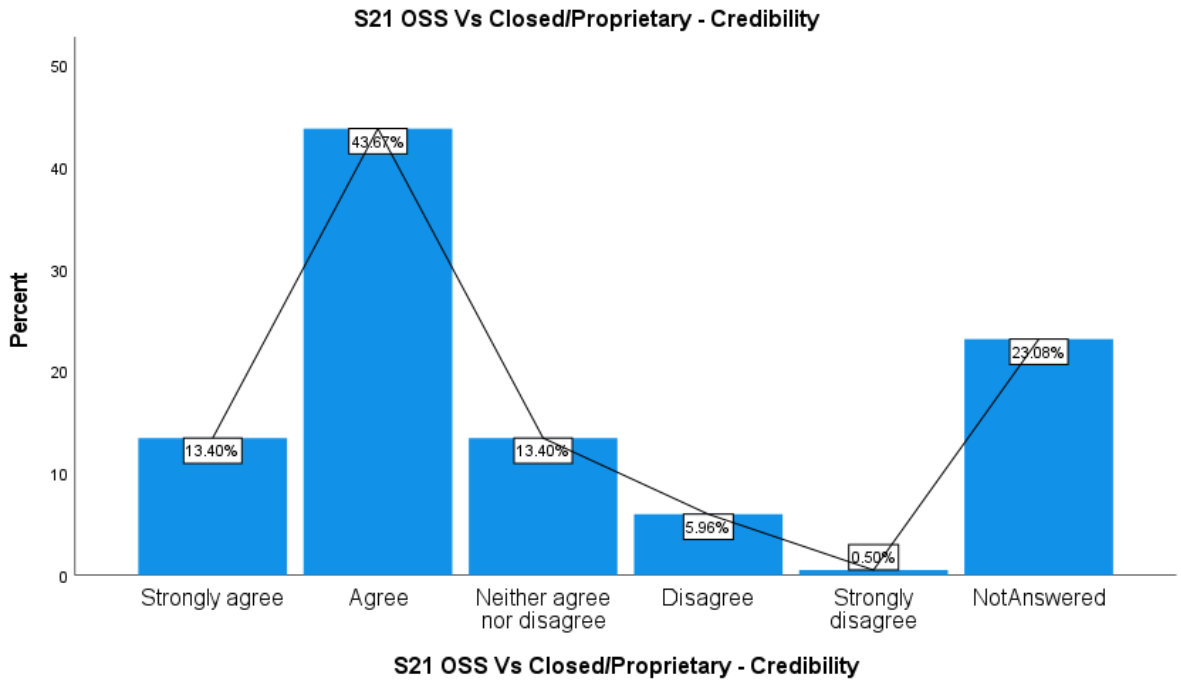


Table 32 illustrates those frequencies for which credibility is increasing with OSS. Most of the IT professionals chose “Agree” 43.7% as shown in Figure 23. 23.1% are not responded to this survey question. 13.40% strongly believe that OSS increases their credibility, but 5.96% disagree with that and a negligible percentage of 0.5% are strongly disagree with that. 13.40% not mentioned their decision whether it is “Agree or Disagree”. Hence, from the analysis, it is

concluding that the sum of "Agree" and "Strongly Agree" values showing that the majority of people believe that OSS increases their credibility.

S24 OSS Modification

Table 33 Frequency of respondents for OSS Modification

S24 OSS Modification					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rarely	93	23.1	23.1	46.9
	Occasionally	122	30.3	30.3	77.2
	Frequently	75	18.6	18.6	95.8
	Never	17	4.2	4.2	100.0
	NotAnswered	96	23.8	23.8	23.8
	Total	403	100.0	100.0	

Figure 24 Bar chart of respondents for OSS Modification

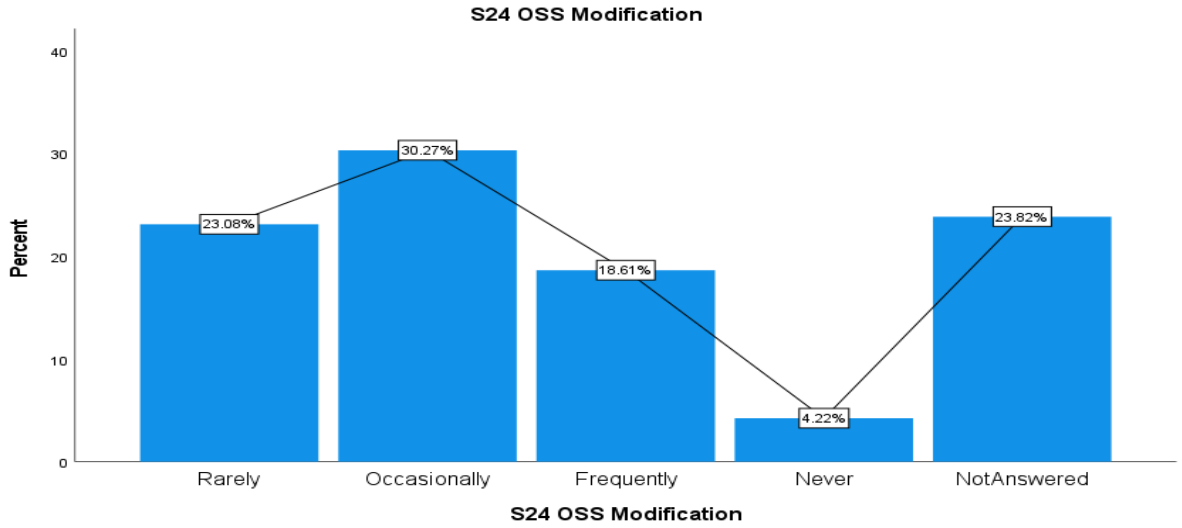


Table 33 illustrates those frequencies for which performance increases with OSS Modification. Most of the IT professionals chose "Occasionally" 30.27%. As shown in Figure 24, 23.82% are not responded to this survey question. 23.08% opted "Rarely" and 18.61% only modify OSS frequently. 4.22% of people never modify OSS. Hence it concludes that IT people modify OSS Occasionally for their requirements.

4.2.2.5. EE

Table 34 Number of participants for OSS- EE

Statistics			
		S19 OSS Vs Closed/Proprietary - Flexible	S23 OSS - Easy Learning
N	Valid	403	403
	Missing	0	0
Mean		1.59	1.55
Median		1.60[a]	1.55[a]

a. Calculated from grouped data.

Table 34 showing the number of participants for this survey is 403.

S14 OSS Vs Closed/Proprietary - Comfortable to use

Table 35 Frequencies of respondents for OSS- Comfortable to use

S14 OSS Vs Closed/Proprietary - Comfortable to use					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Strongly Agree	67	16.6	16.6	39.2
	Agree	181	44.9	44.9	84.1
	Neither agree nor disagree	45	11.2	11.2	95.3
	Disagree	13	3.2	3.2	98.5
	Strongly disagree	6	1.5	1.5	100.0
	NotAnswered	91	22.6	22.6	22.6
	Total	403	100.0	100.0	

Figure 25 Bar chart for OSS- Comfortable to use

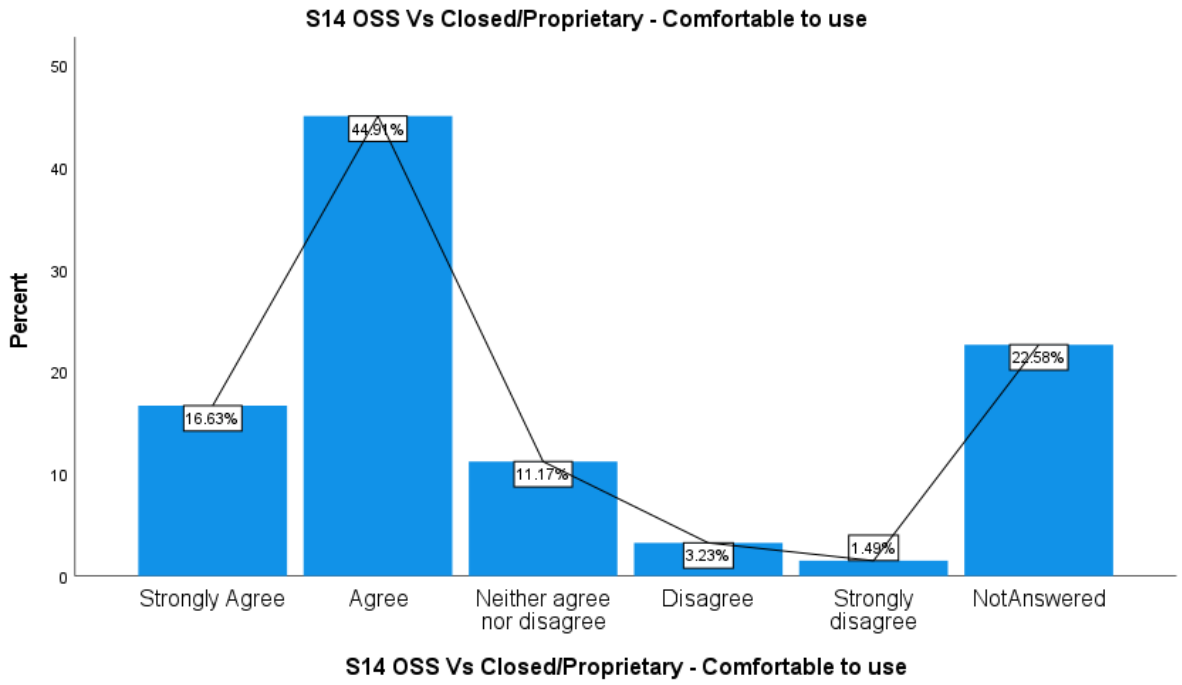


Table 35 illustrates those frequencies for which EE is increasing with OSS. Most of the IT professionals chose “Agree” 44.91% as shown in Figure 25. 22.6% are not responded to this survey question. 16.63% strongly believe that OSS is comfortable to use, but 3.23% disagree with that and a negligible percentage 1.49% strongly disagree with that. 11.17% not mentioned their decision whether it is “Agree or Disagree”. Hence, from the analysis, it is concluding that the sum of “Agree” and “Strongly Agree” values showing that the majority of people believe that OSS is Comfortable to use.

S23 OSS - Easy Learning

Table 36 Frequencies of respondents for OSS- Easy learning

S23 OSS - Easy Learning					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	74	18.4	18.4	42.4
	Agree	173	42.9	42.9	85.4
	Neither agree nor disagree	34	8.4	8.4	93.8
	Disagree	21	5.2	5.2	99.0
	Strongly disagree	4	1.0	1.0	100.0
	NotAnswered	97	24.1	24.1	24.1
	Total	403	100.0	100.0	

Figure 26 Bar chart for OSS- Easy learning

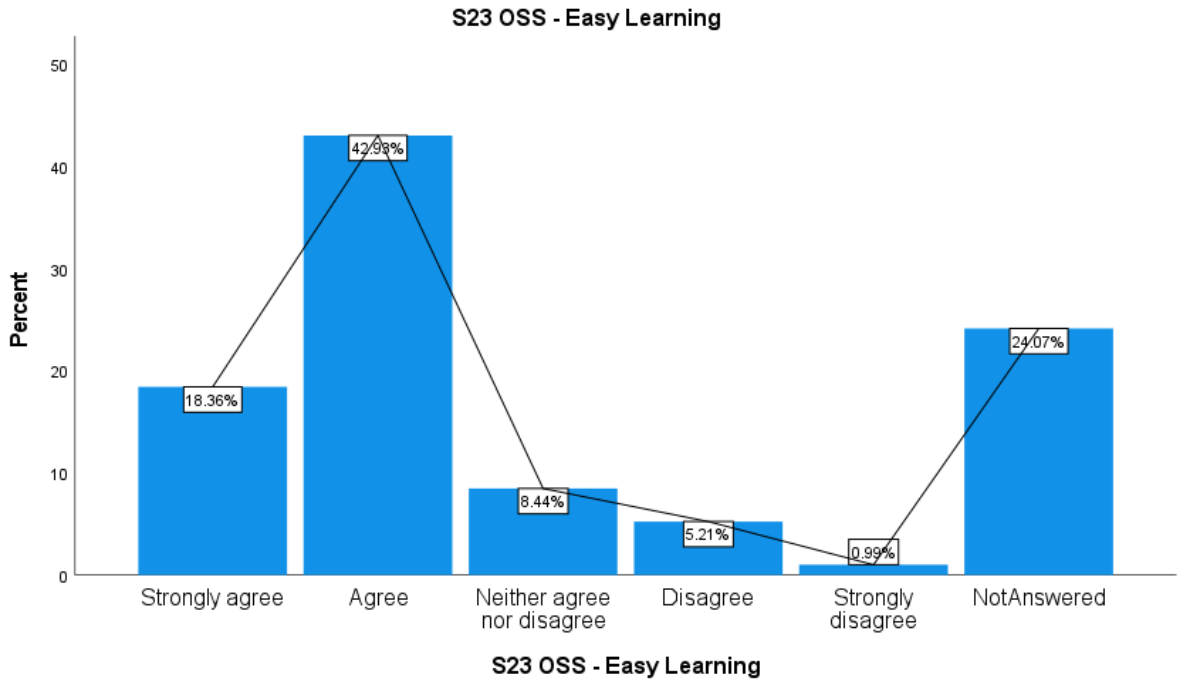


Table 36 illustrates those frequencies for which EE is increasing with OSS. Most of the IT professionals chose "Agree" 42.91% as shown in Figure 26. 24.07% are not responded to this survey question. 18.36% strongly believe that OSS is easy to learn, but 5.21% disagree with that and a negligible percentage 0.99% are strongly disagreed with that. 8.44% not mentioned their decision whether it is "Agree or Disagree". Hence, from the analysis, it is concluding that the sum of "Agree" and "Strongly Agree" values showing that the majority of people believe that OSS is easy to learn.

4.2.2.6. CM

Table 37 Number of respondents for OSS CM

Statistics			
		S16 OSS Vs Closed/Proprietary – Cost	S17 OSS Vs Closed/Proprietary - Maintenance
N	Valid	403	403
	Missing	0	0

Mean	1.60	1.65
Median	1.58[a]	1.67[a]
a. Calculated from grouped data.		

S16 OSS Vs Closed/Proprietary - Cost

Table 38 Frequencies of respondents for OSS- Cost

S16 OSS Vs Closed/Proprietary - Cost					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	73	18.1	18.1	41.4
	Agree	170	42.2	42.2	83.6
	Neither agree nor disagree	41	10.2	10.2	93.8
	Disagree	17	4.2	4.2	98.0
	Strongly disagree	8	2.0	2.0	100.0
	NotAnswered	94	23.3	23.3	23.3
	Total	403	100.0	100.0	

Figure 27 Bar chart for OSS- Cost

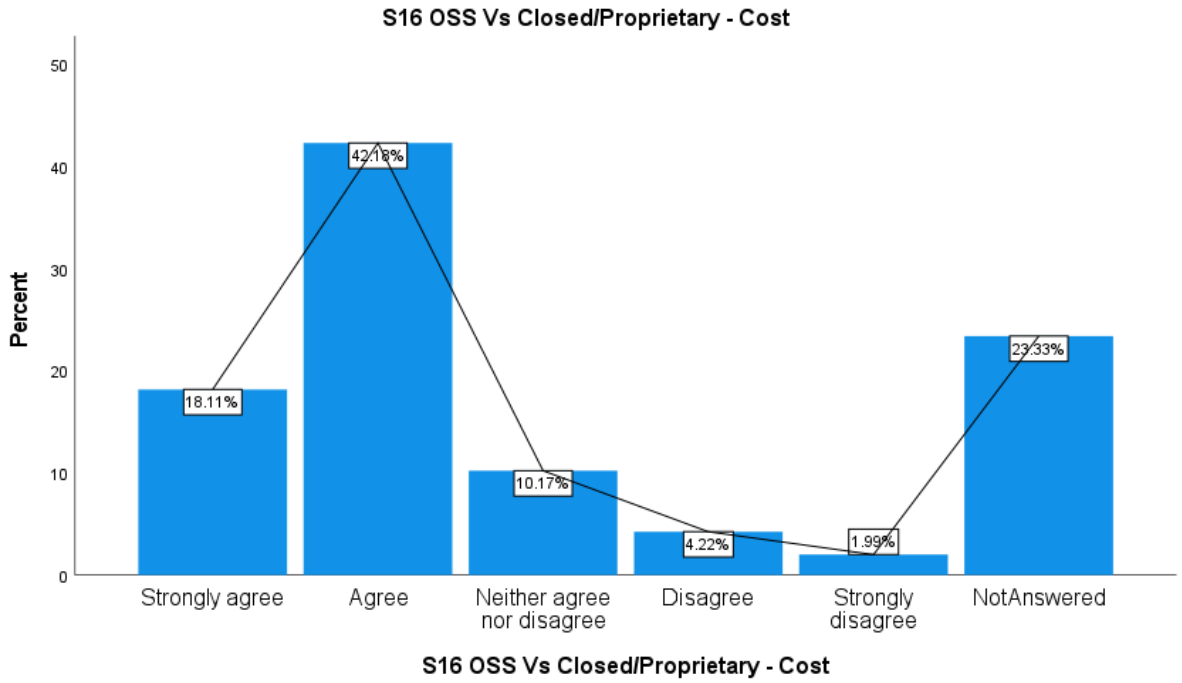


Table 38 illustrates those frequencies for which the cost of OSS is cheaper than PS. Most of the IT professionals chose "Agree" 42.18% as shown in Figure 27. 23.33% are not responded to this survey question. 18.11% strongly believe that OSS is cheaper than PS, but 4.22% disagree with that and a negligible percentage 1.99% strongly disagrees with that. 10.17% not mentioned their decision whether it is "Agree or Disagree". Hence, from the analysis, it is concluding that the sum of "Agree" and "Strongly Agree" values showing that the majority of participants believe that OSS is cheaper than PS.

S17 OSS Vs Closed/Proprietary - Maintenance

Table 39 Frequencies of respondents for OSS- Maintenance

S17 OSS Vs Closed/Proprietary - Maintenance					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	64	15.9	15.9	38.2
	Agree	175	43.4	43.4	81.6
	Neither agree nor disagree	50	12.4	12.4	94.0
	Disagree	18	4.5	4.5	98.5
	Strongly disagree	6	1.5	1.5	100.0
	NotAnswered	90	22.3	22.3	22.3
	Total	403	100.0	100.0	

Figure 28 Bar chart for OSS-Maintenance

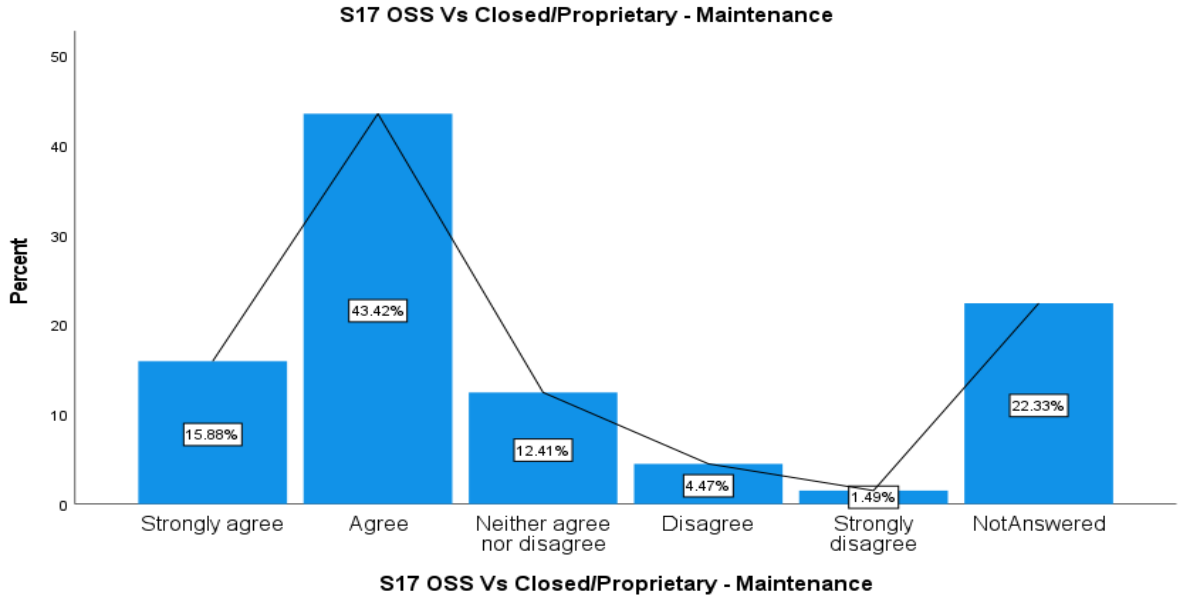


Table 39 illustrates those frequencies for which OSS maintenance is less than PS. Most of the IT professionals chose "Agree" 43.42% as shown in Figure 28. 22.33% are not responded to this survey question. 15.86% strongly believe that OSS has fewer maintenance costs, but 4.47% disagree with that and negligible percentage 1.49% strongly disagree with that. 12.41% not mentioned their decision whether it is "Agree or Disagree". Hence, from the analysis, it is concluding that the sum of "Agree" and "Strongly Agree" values showing that the majority of people believe that OSS has less maintenance when compared to PS.

4.2.2.7. SI

Multiple Response

Table 40 Number of participants for Motivation

Case Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent

$S11[a]	321	79.7%	82	20.3%	403	100.0%
a. Dichotomy group tabulated at value 1.						

Table 40 showing that 321 valid participants for this survey question out of 403 participants.

S17 OSS Motivation

Table 41 Frequencies of respondents for OSS- Motivation

$S11 Frequencies				
		Responses		
		N	Percent	Percent of Cases
S11 Motivation	S11_1 Motivation for OSS usage - My organization moving towards open source	149	31.0%	46.4%
	S11_2 Motivation for OSS usage - OSS enables me to accomplish tasks more quickly	149	31.0%	46.4%
	S11_3 Motivation for OSS usage - We can be able to modify and use the software as per the requirements	99	20.6%	30.8%
	S11_4 Motivation for OSS usage - Using OSS increases the efficiency of the job.	58	12.1%	18.1%
	S11_6 Motivation for OSS usage - There are no alternatives to do the job as good as OSS does	1	0.2%	0.3%
	S11_7 Motivation for OSS usage - Most of the above are free to use	1	0.2%	0.3%
	S11_8 Motivation for OSS usage – NotAnswered	24	5.0%	7.5%
Total		481	100.0%	149.8%
a. Dichotomy group tabulated at value 1.				

Table 41 showing that 31% i.e., 149 respondents claiming that their motivations behind the OSS adoption are their organizations are moving towards OSS and OSS enabling them to accomplish their tasks. 20.6% of IT professionals are using OSS as they can be able to change their OSS software as per their requirements. 12.1% of people found that their efficiency is increased with OSS. 5% people not interested to respond to this question and 02. % of responses showing that the motivations such as users found free OSS and they are unable to find alternatives to do the job.

Frequencies

Table 42 Number of respondents for OSS- Community Support

Statistics		
S22 OSS - Community Support		
N	Valid	403
	Missing	0
Mean		1.62
Median		1.65[a]
a. Calculated from grouped data.		

S22 OSS - Community Support

Table 43 Frequencies of respondents for OSS- Community Support

S22 OSS - Community Support					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	66	16.4	16.4	39.7
	Agree	163	40.4	40.4	80.1
	Neither agree nor disagree	61	15.1	15.1	95.3
	Disagree	17	4.2	4.2	99.5
	Strongly disagree	2	.5	.5	100.0
	NotAnswered	94	23.3	23.3	23.3
	Total	403	100.0	100.0	

Figure 29 Bar chart for Frequencies of respondents for OSS- Community Support

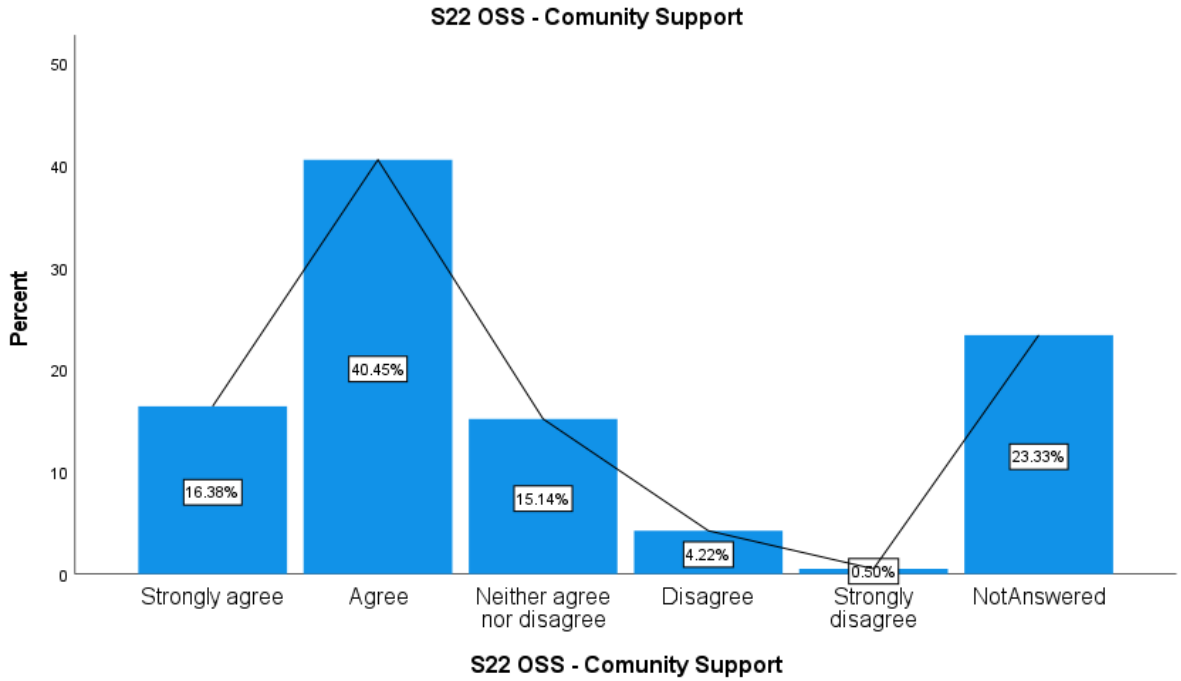


Table 43 illustrates those frequencies for does OSS users getting support when. Most of the IT professionals chose “Agree” 40.45% as shown in Figure 29. 23.33% are not responded to this survey question. 16.38% strongly believe that OSS community support is readily available, but 4.227% disagree with that and a negligible percentage 0.50% strongly disagree that. 15.41%

not mentioned their decision whether it is “Agree or Disagree”. Hence, from the analysis, it is concluding that the sum of “Agree” and “Strongly Agree” values showing that the majority of people believe that they are receiving community support when needed.

4.2.2.8. OSS VS PS

Table 44 Number of participants for OSS VS PS

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
S1 IT Pro & Age>18 * S14 OSS Vs Closed/Proprietary - Comfortable to use	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S15 OSS Vs Closed/Proprietary - Security	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S16 OSS Vs Closed/Proprietary – Cost	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S17 OSS Vs Closed/Proprietary – Maintenance	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S18 OSS Vs Closed/Proprietary – Stable	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S19 OSS Vs Closed/Proprietary – Flexible	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S20 OSS Vs Closed/Proprietary – Quality	403	100.0%	0	0.0%	403	100.0%
S1 IT Pro & Age>18 * S21 OSS Vs Closed/Proprietary - Credibility	403	100.0%	0	0.0%	403	100.0%

S14 -S21 – OSS Vs PS

Table 45 Frequency responses of OSS VS PS

S1 IT Pro & Age>18 * OSS Vs PS Crosstabulation							
Count							
	OSS Vs PS						
	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	NotAnswered	Total
S14 OSS Vs Closed/Proprietary - Comfortable to use	67	181	45	13	6	91	403
S15 OSS Vs Closed/Proprietary - Security	54	162	62	26	9	90	403
S16 OSS Vs Closed/Proprietary – Cost	73	170	41	17	8	94	403
S17 OSS Vs Closed/Proprietary – Maintenance	64	175	50	18	6	90	403
S18 OSS Vs Closed/Proprietary – Stable	48	182	52	22	5	94	403
S19 OSS Vs Closed/Proprietary – Flexible	64	189	34	19	4	93	403

S20 OSS Vs Closed/Proprietary – Quality	48	171	69	18	5	92	403
S21 OSS Vs Closed/Proprietary – Credibility	54	176	54	24	2	93	403

Table 45 shows that the majority of the IT people are choosing the option "Agree". Hence it is showing that users believing that OSS is better than PS.

4.2.2.9. *OSS*

Table 46 Number of participants for the type of OSS product already they are using

Case Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
$S9[a]	323	80.1%	80	19.9%	403	100.0%
a. Dichotomy group tabulated at value 1.						

Table 46 represents 323 participants are responded to this question with 80.1%.

Table 47 Which OSS Product is using most by IT professionals

$S9 Frequencies				
		Responses		Percent of Cases
		N	Percent	
S9 OSS Products	S9_1 OSS Product Linux (Operating system based on UNIX)	175	15.90%	54.20%
	S9_2 OSS Product Apache (HTTP web browser)	161	14.60%	49.80%
	S9_3 OSS Product Moodle (Course Management System)	97	8.80%	30.00%
	S9_4 OSS Product Mozilla Firefox (Web Browser)	78	7.10%	24.10%
	S9_5 OSS Product Mozilla Thunderbird (Email Client)	77	7.00%	23.80%
	S9_6 OSS Product Open Office (Office Suit)	73	6.60%	22.60%
	S9_7 OSS Product Open Solaries (Unix Operating system from Sun Microsystems)	72	6.60%	22.30%
	S9_8 OSS Product Mediawiki (Wiki server Software)	69	6.30%	21.40%
	S9_9 OSS Product Drupal (Content Management System)	55	5.00%	17.00%
	S9_10 OSS Product WordPress (Most important blogging platform)	43	3.90%	13.30%
	S9_11 OSS Product Magento (Fastest growing e-commerce platform)	40	3.60%	12.40%
	S9_12 OSS Product FileZila (FTP Client)	31	2.80%	9.60%
	S9_13 OSS Product GIMP (Image Editor)	25	2.30%	7.70%
	S9_14 OSS Product VLC (Media Player)	17	1.50%	5.30%
	S9_15 OSS Product Pidgin (Instant messaging tool)	16	1.50%	5.00%
	S9_16 OSS Product Notepad++(Windows based CSS editor)	14	1.30%	4.30%
	S9_17 OSS Product 7-zip (to unzip folders)	14	1.30%	4.30%

	S9_18 OSS Product Blender (3D content creation)	13	1.20%	4.00%
	S9_19 OSS Product PDFCreator (Create PDF files)	12	1.10%	3.70%
	S9_20 OSS Product TrueCrypt (Encryption Program)	8	0.70%	2.50%
	S9_22 OSS Product Selinium	6	0.50%	1.90%
	S9_23 OSS Product None	2	0.20%	0.60%
	S9_24 OSS Product NotAnswered	1	0.10%	0.30%
Total		1099	100.00%	340.20%
a. Dichotomy group tabulated at value 1.				

Table 47 showing that Linux is the top OSS product using by 175 participants with 15.90%. The next most using product is Apache (HTTP web browser) by 161(14.60%) participants. 97(8.80%) respondents using Moodle. The remaining all OSS product usage having a slight difference as shown in the table.
. Also, this test stating that there is a 56.3% impact of PE on BI.

As per the results the β=0.206 and P <0.001 and t-value=4.014 indicate that PE has a significant impact which is 54.7% and by introducing IT Speciality the connection has a variance of 55.1%.

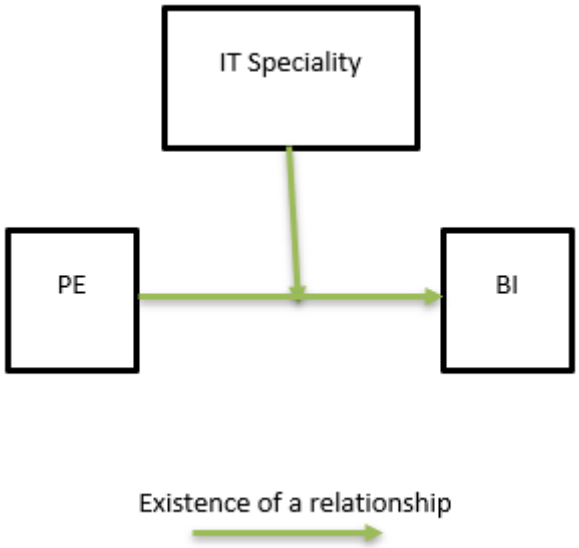


Figure 50 The Relation of PE and BI is moderated by IT Speciality

The existence of a relationship is shown by a green line in Figure 50. Hence the results are concluded that there is a statistically significant impact of PE on BI, and the relation is moderated by IT-Speciality. These results are consistent with the previous results presented in the literature(Alrawashdeh et al., 2020; Ghapanchi, 2015)

4.3.3.7. BI ->OSS

H7: The relationship between the actual use of OSS and a user's BI is significant.

OSS initiatives have recently gained popularity among individuals and organizations. According to Gallego et al.(2015) Katsamakas & Xin(2019) OSS has grown in popularity and has become a strong challenger to traditional PS.

López et al.(2015), Morgan & Finnegan(2014), and Safadi et al.(2015) It was noted that OSS solutions are secure, highly trustworthy, and stable with high SQ, and that OSS programs are available at a low or no cost, and that users will receive expert guidance from a large online community. Zuiderwijk et al.(2015) addressed those social factors such as usage behaviors, user impact, and user involvement are typically incorporated into the adoption and use of OSS.

The BI to accept the system is influenced by many ways such as user satisfaction, the usability of the product, and software characteristics as SQ, SEC, and cost. Paschali et al.(2017) claiming that users' intentions to accept OSS over other types of software depend on the ease of use, cost of the system, and product reusability.

According to the quantitative survey data, the Chi-square results are discussed in section ***4.2.3.7.*** **Analysis for finding the impact of BI on OSS** illustrates that BI has a positive impact on OSS with a significant p-value.

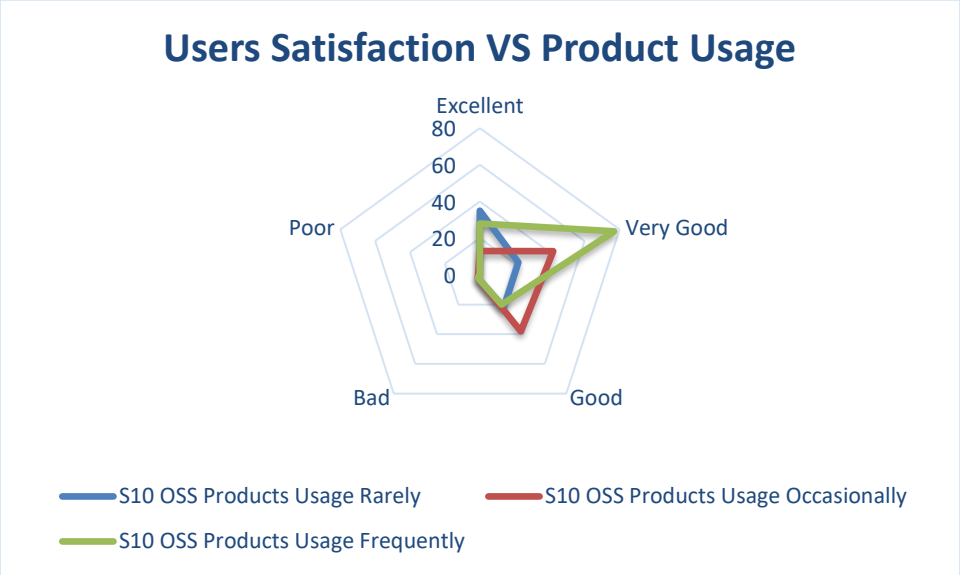


Figure 51 User satisfaction VS Product usage

Figure 51 is a radar chart from the quantitative data results which show that when users are satisfied with the OSS product, they use the product frequently. Hence, thus results showing that users' behavioral intentions have a positive impact on OSS acceptance. These behavioral intentions are depending on factors discussed above such as SI, SEC, SQ, PE, EE, and CM. Therefore, the main research question is answered.

By summarising all the above details Table 71 presents the relationship between the Hypotheses and the Quantitative results.

Table 71 Hypothesis and results

Hypothesis	Relation	Description	Result
H1a	EE->BI	The EE impact the BI	Supported
H1b	EE->BI moderated by IT Speciality	The relation between the EE and the BI is moderated by IT Speciality	Supported
H2	SI->BI	The SI impact the BI	Supported
H3	CM->BI	The CM impact BI	Supported

H4	SQ->PE	The Software SEC impact BI	Supported
H5a	SEC->BI	The EE influence BI	Supported
H5b	SEC->BI moderated by IT Speciality	The relation between the EE and the BI is moderated by IT Speciality	Supported
H6a	PE->BI	PE impacts the BI	Supported
H6b	PE->BI moderated by IT Speciality	The relation between the PE and BI is moderated by IT Speciality	Supported
H7	BI->OSS	The BI impact the OSS adoption	Supported

Table 72 Relation between hypothesis, RQs, SQs, and results

Research Question	Literature	Survey Questions	Hypothesis	Relation	Result
RQ1.1.	2.9. PE	S12, S13,S21,S24	H6a	PE->BI	Y
RQ1.2.	2.8. SI	S11,S22	H2	SI->BI	Y
RQ1.3.	2.10. EE	S14,S19,S23	H1a	EE->BI	Y
RQ1.4.	2.7. CM	S16,S17	H3	CM-> BI	Y
RQ1.5.	2.6. SEC	S15	H5a	SEC->PE	Y
RQ1.6.	2.5. SQ	S18,S20	H4	SQ->PE	Y
RQ1.7.	2.4. OSS VS PS	S14,S15,S16,S17,S18,S19,S20,S21	H7	BI->OSS	Y
RQ1.8.	2.3. OSS	S2,S7,S8,S9,S25,S27	H7	BI->OSS	Y
RQ1.	2.11. BI	S3,S10.S26,S28	H7	BI->OSS	Y

Table 72 illustrates the relationship between the literature review, hypothesis, research questions, main survey questions, and presents the result from survey data. Factors such as SI, SEQ, SQ, CM, EE, PE, BI influence the IT professionals to adopt OSS.
Therefore, H1a, Hb, H2, H3, H4, H5a, H5b H6a, H6b, H7 are all strongly supported.

Therefore, the answer to the main research question is:
What factors influence users in IT Professions to adopt OSS over other Types of software such as PS?

The influential factors for the adoption of OSS by IT professionals in India are SEC, SQ, SI, PE, EE, CM, and BI. This result is consistent with some of the previous literature(Alrawashdeh, 2020, Amrollahi, 2014, Ayala, 2011).

4.4. Conclusion

This chapter presented the survey's findings. As described in Chapter 3, the quantitative survey response was examined using the SPSS results. Cronbach's alpha was used to perform the reliability test, which was statistically significant. The descriptive analysis examines the results question by question, whereas Chi-square examines the association between the demographic question and the main survey questions. The Chi-square results are displayed using tabular charts and bar charts with the number of questionnaire participants and cross-tabulation. In addition, the Regression test was used to determine the interaction between the dependent, independent, moderator, and its effect on each item. For each survey question, the Regression findings were shown using tabular charts. The hypothesis, sub-research questions, and major research questions are all answered based on the findings of those tests. The results obtained after comparing the analysis results with the literature review are discussed in the next chapter.

5. Conclusion

5.1. Introduction

The researcher acknowledges the limitations of this study in part 5.2, and the recommendation for further work is discussed in section 5.3. The researcher explains the Possible refinements in section 5.4. Critical analysis and Future scope are presented in sections 5.5and 5.6 accordingly. The researcher depicts the entire research procedure and gives the findings in section 5.7.

5.2. Limitations

Even though the researcher followed an adequate technique based on the best of the researcher's knowledge, the research had a few drawbacks, as do other studies. These restrictions are listed below.

5.2.1. Limitations of the research methodology

The research used Chi-Square and regression testing to determine the relationship between variables, although these methods have the limitations listed below.

Even though Chi-Square is a well-known test, it has two drawbacks. Chi-square has a fairly rigorous sample size requirement. A trivial link can appear statistically significant if the sample size is large enough.

Yet, statistical significance may not always imply significance. Another disadvantage of the Chi-square test is that it can only determine whether or not two categorical variables are related. The outcome does not always imply a causal influence. A more extensive investigation will be undertaken to determine causality (UTAH, 2020).

Finally, the Regression test has several restrictions. The regression test is a limited stepwise method that cannot do all subset regression testing. Furthermore, the choice of variables and the criteria for meaningful tests result in type I/II mistakes (Yang, 2013).

5.2.2. Issues in Sample data collection

The researcher is unable to get a huge number of participants for this survey due to the world's new pandemic COVID-19. This research is only focused on the IT population from India. But, the country facing a huge COVID-19 outbreak, and India recorded a global record in Corona impact and deaths(TheGuardian, 2021).

BBC(2021) and NZherald(2021) evidences the devastating impact of COVID-19 on India due to the second wave of coronavirus. As per Bloomberg(2021) statistics, India is the top affected country. Like all sectors, the Indian IT sector is also affected the most. Many IT employees were also affected by viruses and lots of IT professionals lost their jobs. The working culture becomes remote(TheEconomicTimes, 2021). Because of these situations, the researcher was unable to reach the Indian IT people to get adequate responses.

5.2.3. Inadequacy

This survey will gather information from a specific point of time and not in different periods. Hence, this may deter in identifying a particular direction for OSS adoption by users in IT.

5.2.4. Dishonest results

Considering the survey is conducted online to accumulate the data, there may be a likelihood where the participants perhaps are dishonest or bias with their responses, which might lead to unsatisfactory results.

5.2.5. Casual Responses

The participants may neglect or pass over the questions and likely choose an option that may be unreliable.

5.2.6. Differences in interpretation

The interpretation of a particular question is subjective. Consequently, it is plausible that participants may interpret a problem in various ways to that of the researcher. Thus, it may be a factor in obtaining unreliable results.

5.3. Possible Refinements

The researcher included data collection and data analysis methods for possible refinement. The researcher felt more effective, and a smaller number of questions were to be included in the survey process. For data analysis, the researcher could have used a greater number of tools and technologies for improvements. Thus, the researcher must therefore be refined the data gathering and analysis process.

5.4. Critical Analyses

The concept of academic research is very new to the researcher, so during this research process, the researcher gained new research experience and learned new research tools and technologies. The literature analysis during this research helped the researcher to gain in-depth knowledge of the topic and enable the researcher to do data analysis to express the topic.

The researcher gained knowledge on research models, how to develop the research questions to prove the hypothesis. Also, the researcher got hands-on experience on literature maps, google diagrams, survey implementation on Qualtrics, data analysis on IBM SPSS tool and MS office.

Even though the researcher has IT knowledge, but the topic of OSS is very new for the researcher. During this study, the researcher gained a good knowledge of OSS characteristics,

different products of OSS, and other knowledge about available software types. Hence, the research affects the researcher's knowledge.

The researcher sometimes found it tough to study independently but with the support of the supervisors, it is complete. That was an excellent experience and knowledge.

5.5. Future Work

OSS is increasingly popular, affordable, and utilized globally. It is replacing the traditional software tools and technologies such as PS, Closed, and freeware types of software. Hence, It has become more and more important to measure its influence with its expansion in scale. The research focuses on the impact of software characteristics on the usage of OSS by IT professionals. The study focuses on only IT professionals in India as a geographical location, but it could be needed to expand the study to more geographical areas for a better understanding of OSS user acceptance influence factors. Also, the current research is focused on only individual user acceptance, Therefore, the study can also be done to investigate the level of adoption in private companies and public sectors. The Objective of future study could be.

- Does open source overtake PS systems completely?
- What has the effect on the digital industry so far been with open source?
- How much will be existing operating support systems end up depending on OSS?
- Review on factors impacting OSS user acceptance at the global level.
- What is the level of adoption of OSS in the private and public sectors?
- What is the gender impact on OSS contribution and usage?

5.6. Concluding Remarks

The open-source moment became more popular these days, and it changed the way of the traditional development process. Many scholars have already researched the context of OSS contribution, but the research on OSS usage is limited. Moreover, OSS's acceptance differs among firms and individuals. Due to the less awareness of OSS, the use of OSS among IT professionals is limited. Thus, the current study's primary purpose is to identify the characteristics and factors that directly affect individual attitudes towards OSS adoption and IT specialists' usage.

The research aim of this study was met by understanding the factors that influence the IT professionals to use OSS. The study investigated the validation of research methodology UTAUT Framework in the context of OSS. The researcher used the Qualtrics tool to construct the 28 OSS-related survey questions and the survey link is distributed using social networking sites such as WhatsApp and Facebook. The gathered results are analyzed by using a statistical analytics tool IBM SPSS. In the SPSS variable view page, the researcher did code to perform the Cronbach's alpha, Descriptive analysis, the Chi-square test, and Regression tests to investigate the answers for the research questions from the survey questions. This research gained 403 valid responses with the highest male participation and 85.6% of professionals are familiar with OSS. Results concluded that big and small organizations are using more OSS products when compared to medium organizations. IT experts with Software development knowledge and experience of 1-10 years professionals are having a better idea about OSS usability. The results of the study showing that SEC and SQ are having a positive impact on PE, whereas PE, EE, SI, and CM have a significant positive impact on BI use. The BI has a significant impact on the adoption of OSS. The results are concluding that OSS is effortless, cheaper, and quality in terms of code when compared to PS. The results are also concluded that organizations and community support are the main motivation factors to use OSS in Indian firms. The analysis concluded that big and small companies are more utilizing the OSS in their process.

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7. Appendix

A1. Abbreviations

Name	Abbreviation
OSS	Open Source Software
PS	Proprietary Software
IT	Information Technology
SEC	Security
SQ	Software Quality
SI	Social Influence
PE	Performance Expectancy
EE	Effort Expectancy
BI	Behavioural Intensions
TAM	Technology Acceptance Model
UTAUT	Unified Theory of Acceptance and Use of Technology
IBM SPSS	IBM Statistical Package for the Social Sciences

A2. Literature

A2.1. OSS

Author & Year	Article Name	Key Findings	Research Method

Amrollahi, A., Khansari, M., & Manian, A. (2014).	How Open Source Software Succeeds? A Review of Research on Success of Open Source Software.	The researchers found that the measure of success of OSS depends on many software downloads, several developers, level of activity, and bug fixing speed. Also, they observed that the success factors of OSS are developers, products, and users	Quantitative
Morgan, L., & Finnegan, P. (2014). Beyond free software:	An exploration of the business value of strategic open source.	This paper analyzed the way European firms generating business value with OSS. Also identified that cost, flexibility, innovation, and collaboration are the main characteristics to create business profits	Quantitative
Gallego, M. D., Bueno, S., Racero, F. J., & Noyes, J. (2015).	Open source software: The effects of training on acceptance.	This study found that training of OSS has a positive impact on user acceptance and the results are in line with the literature	Quantitative
López, L., Costal, D., Ayala, C. P., Franch, X., Annosi, M. C., Glott, R., & Haaland, K. (2015).	Adoption of OSS components: a goal-oriented approach.	The OSS adoption strategies have different ontologies, but which are mainly focused on community participation with special attention to licenses and roles of contributors, but this is not correct in business strategies of organizations	Mixed Methods
Safadi, H., Chan, D., Dawes, M., Roper, M., & Faraj, S. (2015).	Open-source health information technology: A case study of electronic medical records.	OSS promotes the solution for the low adoption of health IT by using unique features such as low cost, customization, etc. But also, there are some challenges for adoption such as lack of familiarity with the OSS model, lack of integration, etc	Qualitative
Russo, D. (2016).	Benefits of open source software in defense environments.	This paper claims that OSS needs continue changes and testing for the sustainable software development	Qualitative
Coelho, J., & Valente, M. T. (2017).	Why modern open source projects fail.	The researcher used to survey 104 deprecated GitHub projects to understand the reason for failures and found 9 reasons. Also found that project success or failure depends on continuous integration and adoption of contribution guidelines	Qualitative

Li, Z., Seering, W., Ramos, J. D., Yang, M., & Wallace, D. R. (2017).	Why open source?: Exploring the motivations of using an open model for hardware development.	The researchers are interviewed 23 company leaders to understand their experience and motivation of using OSS and most of the results showing that intrinsic motivations such as personal satisfaction and recognition are a major factor to adopt OSS	Qualitative
Katsamakas, E., & Xin, M. (2019).	Open source adoption strategy.	This study found that stronger the IT capabilities of the firm hence more OSS adoption and weaker IT capability firms adopt PS application infrastructures	Qualitative
Kaur, R., Chahal, K. K., & Saini, M. (2020).	Understanding Community Participation and Engagement in Open Source Software Projects: A Systematic Mapping Study.	This study conducted a systematic mapping method to identify the factors affecting community participation and active participation. The article identified that factors such as support to newcomers, age, gender, task availability, and technical barriers are more influencing factors	Mixed Methods

A2.2. OSS VS PS

Author & Year	Article Name	Key Findings	Research Method
Zhu, K. X., & Zhou, Z. Z. (2012).	Research note—Lock-in strategy in software competition Open-source software vs. proprietary software	this research shows that changing CM will not benefit the PS manufacturers to attract customers, the main reason is the OSS providers can prefix the CM more credibly. Hence the lock-in strategy is expensive for PS when compared to OSS. So, giving the customer to choice of the product price subsidy will be a benefit to the software providers.	Mixed method
Harrer, S., Lenhard, J., & Wirtz, G. (2013).	Open source versus proprietary software in service-orientation: the case of BPEL engines. Paper presented at the International Conference on Service-Oriented Computing.	This study presents the comparison between the PS and OSS Oriented architecture BPEL process engines. The results concluding that even though both software is similar, PS performs better than OSS	Experiment

Botwe, D. A., & Davis, J. G. (2015)	A comparative study of web development technologies using open source and proprietary software.	This paper compared the different web application development technologies and found that OSS tools such as Java, PHP are cheaper to implement and found PS such as ASP.NET and PHP are more user friendly than OSS	Mixed method
Casadesus-Masanell, R., & Llanes, G. (2015).	Investment incentives in open-source and proprietary two-sided platforms	The researchers discovered that high investment in the open platform will benefit the PS platform and the number of developers working on the program having an impact on the benefits to open platform investment	Quantitative
Sacks, M. (2015).	Competition between open source and proprietary software: Strategies for survival.	Key findings are OSS is not free and many organizations provide OSS for consumers but sells user guides and documentation and some companies sell software at some price and allow users to modify according to their requirements. Hence OSS is more usable and has advantages over PS	Mixed method
Singh, A., Bansal, R. K., & Jha, N. (2015).	Open source software vs proprietary software	The study identified that OSS has to gain popularity and over 70 % of US IT professionals prefer OSS over PS	Qualitative
Dhir, S., & Dhir, S. (2017).	Adoption of open-source software versus proprietary software	This study concludes that people are moving to PS due to an increase in CM, stability, more commercial support, and software development while for the better SEC, free support, and ease of software development, people are showing interest in OSS	Qualitative
Nguyen-Duc, A. (2017).	The impact of software complexity on cost and quality-A comparative analysis between Open source and proprietary software.	With more design complexity the larger is the variation in SQ attributes such as development effort, reusability, maintainability in PS	Quantitative

Odun-Ayo, I., Falade, A., & Samuel, V. (2018).	Cloud Computing and Open Source Software: Issues and Developments.	OSS technologies such as Open stack are the best option for cloud computing. And gaining more attention because of SEC vulnerable. PS has many security risks than OSS	Mixed method
Pinto, G., Steinmacher, I., Dias, L. F., & Gerosa, M. (2018).	On the challenges of open-sourcing proprietary software projects.	scholars identified that the shifting from PS to OSS gives benefits such as software SQ, project diversity, increasing bug fixing rate	Quantitative
Bamhdi, A. (2021).	Requirements capture and comparative analysis of open source versus proprietary service-oriented architecture.	The evaluation and analysis, it is showing that OS SOA has the simplest solution, which is developer-friendly, cost-effective, and fit to many organizations but OS code is available for everyone so security concerns will occur, so in this case PS is advantageous	Qualitative

A2.3. SQ

Author & Year	Article Name	Key Findings	Research Method
Aberdour, M. (2007).	Achieving quality in open-source software.	This key research found many things about the SQ of OSS. The SQ is dependent on Community, rapid code development and bug fixing, providing documentation and user guides to adopters/users and code review, etc.	Mixed method
Lee, S. Y. T., Kim, H. W., & Gupta, S. (2009).	Measuring open source software success.	Researchers found that SQ and OSS community service quality are the main factors that influence users to use more OSS products and increase the OSS success rate	Quantitative
Spinellis, D., Gousios, G., Karakoidas, V., Louridas, P., Adams, P. J., Samoladas, I., & Stamelos, I. (2009).	Evaluating the quality of open source software.	The SQ of OSS can be evaluated by combining the metrics such as product and process in software development. On the OSS platform, the above-mentioned metrics are quantitatively measured to evaluate the SQ	Quantitative
Sarrab, M., & Rehman, O. M. H. (2014).	Empirical study of open source software selection for adoption, based	This study presents that the quality characteristics dimensions such as system, information,	Qualitative

	on software quality characteristics.	service quality motivate the users in IT to adopt OSS products.	
Alenezi, M., & Almustafa, K. (2015).	Empirical analysis of the complexity evolution in open-source software systems.	To measure the SQ of software is one of the main goals in the software practices which is done by evaluating the source lines of code and cyclomatic complexity. The researchers are found that increase in complexity by changing source code and continued growth are always applicable to OSS projects.	Mixed Methods
Bahamdain, S. S. (2015).	Open source software (OSS) quality assurance	The OSS product usage is increasing day by day and is using on many public domains also but the SQ of a product has many difficulties than PS products as this OSS are developed by professionals around the globe in a collaborative model. Even though there are a lot of OSS products which has good SQ but still OSS developers should concentrate on the product SQ	Mixed Methods
Adewumi, A., Misra, S., Omoregbe, N., Crawford, B., & Soto, R. (2016).	A systematic literature review of open source software quality assessment models.	The researchers reviewed OSS SQ characteristics and they found that maintainability and usability are the main characteristics of OSS SQ	Qualitative
Wasserman, A. I., Guo, X., McMillian, B., Qian, K., Wei, M. Y., & Xu, Q. (2017, May).	OSSpal: finding and evaluating open source software.	This study claims that OSS having frequent releases and if there is any major release of the software there will be an impact on overall SQ, even though frequent releases are the main concerns of OSS, but the result will bring significant improvements in performance and program SQ	Mixed Method
Dong, J. Q., Wu, W., & Zhang, Y. S. (2019). T	The faster the better? Innovation speed and user interest in open source software.	This paper found that users have limited knowledge of the OSS projects so the project leaders must signal the developers to improve the quality of the product and attract the users by using the innovative speed in the release of the OSS product	Qualitative

Molnar, A. J., Neamtu, A., & Motogna, S. (2019, May).	Longitudinal Evaluation of Software Quality Metrics in Open-Source Applications. In ENASE (pp. 80-91).	The results showing that all the OSS metrics considered in the applications are having a constant influence on the SQ and the class size of the projects	Quantitative

A2.4. SEC

Author & Year	Article Name	Key Findings	Research Method
Ajigini, O. A., Van Der Poll, J. A., & Kroeze, J. H. (2014, December).	Towards a model on security challenges during closed source software to OSS migrations.	The comparison of OSS and CSS benefits are showing OSS has more benefits and OSS is more secured than CSS. Also, this paper found the SEC challenges occur during migration of CSS to OSS such as detecting risks and bugs, testing, and obtaining metrics for evaluating software SEC in real-time	Qualitative
Plate, H., Ponta, S. E., & Sabetta, A. (2015, September).	Impact assessment for vulnerabilities in open-source software libraries.	The paper states about the SEC vulnerabilities of OSS applications. This paper presents the proof-of-concept using Java program case study	Experiment
Alenezi, M., & Javed, Y. (2016, September).	Open source web application security: A static analysis approach.	The paper found that OSS projects facing SEC risks due to lack of developer knowledge on security vulnerabilities and poor coding skills	Quantitative
Sood, G., Shipra, D., & Soni, R. (2016).	Comparative Study: Proprietary Software vs. Open Source Software.	This research presents the comparisons between various features of OSS and PS and presents a better understanding of the OSS	Comparative analysis
Silic, M., & Back, A. (2016).	The influence of risk factors in decision-making process for open source software adoption.	The researchers argue that not only do OSS users consider the security risks while adopting OSS, but the contributors also use secured development frameworks in their programming practices	Quantitative

Duan, R., Bijlani, A., Xu, M., Kim, T., & Lee, W. (2017, October).	Identifying open-source license violation and 1-day security risk at large scale.	This paper presents a programmatic approach OSSPolice to check the SEC and licensing issues of OSS products	Experiment/Comparative Analysis
Wen, S. F. (2017, November).	Software security in open source development: A systematic literature review.	The key findings of this paper are no research was focused on security aspects of OSS in the previous literature. The main SEC practice of OSS is system verification but not the socio-technical perspective	Mixed Methods
Domar Bolmstam, S., & Hanifi, S. (2020).	Security Guidelines for the Usage of Open Source Software.	The paper found that OSS usage is lacking the SQ of SEC guidelines. If the guidelines of OSS usage missing the important information, then the user will miss the important steps to implement which leads to an increase in security attacks in an organization	Qualitative
Kumar, R., & Goyal, R. (2020).	Modeling continuous security: A conceptual model for automated DevSecOps using open-source software over cloud (ADOC).	Researchers proposed ADOC conceptual model to enable continuous delivery and continuous SEC in DevSecOps which delivers cost-effective, fast, and secured solutions in time to market-ready applications	Quantitative
Angermeir, F., Voggenreiter, M., Moyón, F., & Mendez, D. (2021).	Enterprise-Driven Open Source Software: A Case Study on Security Automation.	The key findings are only 6.8% of OSS project maintainers are following SEC activities in the CI process so SEC concepts are overseen in the development environment of OSS. These activities may be influenced by the language and knowledge of project maintainers	Mixed Methods

A2.5. CM

Author & Year	Article Name	Key Findings	Research Method
Ayala, C. P., Cruzes, D., Hauge, Ø., & Conradi, R. (2011).	Five facts on the adoption of open source software	The key findings are the main motive behind the organizations adopt OSS is reduced licensing costs, reduced development costs due to code reusability, and reduced maintenance costs	Mixed Methods
Kamau, J., & Namuye, S. (2012).	A review of user's adoption of open source software in Africa.	The companies such as Microsoft achieved lock in customers by selling OSS products and customers are attracting to the OSS products due to the cost-saving options	Mixed Methods
Ramanathan, L., & Krishnan, S. (2015).	An empirical investigation into the adoption of open source software in Information Technology outsourcing organizations.	Some of the IT companies attracting customers by using OSS as a Service by filling the gaps between the support and reducing the software ownership costs. Hence the adoption of OSS has a direct influence on OSS CM, support costs, management support, and so on	Quantitative
Adams, B., Kavanagh, R., Hassan, A. E., & German, D. M. (2016).	An empirical study of integration activities in distributions of open source software.	Researchers concluding that reusing source code in IT practices improves SQ and reduces the development cost, but these components are generic which need to be customized and integrated into a software system which will increase the maintenance costs. Since all integrations are specific system integrations that require more integration costs.	Quantitative
Shaikh, M. (2016).	Negotiating open source software adoption in the UK public sector.	This paper found that private sector companies are tending to use OSS products because of reduced CM but the adoption is still lacking in public sectors	Qualitative

Paschali, M. E., Ampatzoglou, A., Bibi, S., Chatzigeorgiou, A., & Stamelos, I. (2017).	Reusability of open source software across domains: A case study.	The results showing that software development tools are more reusable assets which reduce the development costs especially OSS projects help the professionals to reuse the components at domain level projects as well.	Quantitative
Thankachan, B., & Moore, D. (2017).	Challenges of implementing free and open source software (FOSS)	The research found that ICT provides software at low prices but deploying and CM is going beyond the initial purchase of the product which is the main barrier to adopt the OSS product	Qualitative
Linåker, J., Munir, H., Wnuk, K., & Mols, C. E. (2018).	Motivating the contributions: An open innovation perspective on what to share as open source software.	The results present that CAP models enable firms to gain full profits from OS low CM	Quantitative
Olson, D. L., Johansson, B., & De Carvalho, R. A. (2018).	Open source ERP business model framework.	The results showing that OS provides many opportunities and cost-benefit solutions to the users and clients. SMEs are benefiting from cost-saving options. Medium-scale companies can buy PS but small-scale organizations are looking towards alternative options such as OSS.	Quantitative
Baranes, E., Vuong, C. H., & Mourad, Z. E. R. O. U. K. H. I. (2020).	Competitive Strategy of Proprietary Software Firms in an Open Source Environment.	This paper discovered that the organizations are strategically choosing to build the PS products with lower SQ than the OSS. If the OSS SQ disadvantage is low or the OSS becomes more appealing from a client standpoint, the company will reduce both the PS price and SQ.	Quantitative

A2.6. SI

Author & Year	Article Name	Key Findings	Research Method
Marsan, J., & Paré, G. (2013).	Antecedents of open source software adoption in health care organizations: A qualitative survey of experts in Canada.	This research found many characteristics for OSS adoption and among them, one main factor is characteristics of the external environment. Such as public discourse surroundings OSS news in papers blogs and word of mouth has a play key role in deciding to adopt OSS	Qualitative
Mount, M. P., & Fernandes, K. (2013).	Adoption of free and open source software within high-velocity firms.	SI and organizational influence do not have any impact to choose OSS in the projects. Only	Quantitative
Singh, P. V., & Phelps, C. (2013).	Networks, Social Influence, and the Choice Among Competing Innovations: Insights from Open Source Software Licenses.	key results are saying that if the adapter is having more depth knowledge on OSS, then SI is less influence in selecting the OSS licenses. If the adopter is new, then they are likely to choose the same licenses of previous successful OSS project	Quantitative
Yan, L. (2014).	Social capital characteristics of open source software opinion leaders.	The researcher found that IT managers roles play a key role in the influence of OSS adoption	Quantitative
Martin, C. (2014).	Barriers to the open government data agenda: Taking a multi-level perspective.	This research found that two main barriers are influencing the adoption of OSS implementation and user barriers. This study states that SI influences intention to use	Quantitative
Choi, N., & Yi, K. (2015).	Raising the general public's awareness and adoption of open source software through social Q&A interactions.	The results showing that users are having a huge interest to adopt OSS which meets their software requirements. And they are motivated by public information and awareness on a social platform	Quantitative

Kalliamvakou, E., Damian, D., Blincoe, K., Singer, L., & German, D. M. (2015, May).	Open source-style collaborative development practices in commercial projects using GitHub.	This research found that commercial firms are showing interest to replicate GitHub based social collaborative approaches in their project practices	Mixed Methods
Steinmacher, I., Silva, M. A. G., Gerosa, M. A., & Redmiles, D. F. (2015).	A systematic literature review on the barriers faced by newcomers to open source software projects.	As per the researcher's analysis, most of the barriers facing by newcomers is due to social interaction	Qualitative
Zuiderwijk, A., Janssen, M., & Dwivedi, Y. K. (2015).	Acceptance and use predictors of open data technologies: Drawing upon the unified theory of acceptance and use of technology.	This research found that SI is an important factor to improve the BI to use and adopt OSS.	Quantitative
Spaeth, S., von Krogh, G., & He, F. (2015).	Research note—Perceived firm attributes and intrinsic motivation in sponsored open source software projects.	The key results showing that community-based credibility of open source supporting company motivating participants with social identifications as a key point	Quantitative
Bhatt, P., Ahmad, A. J., & Roomi, M. A. (2016).	Social innovation with open source software: User engagement and development challenges in India	The findings emphasize the importance of the developer's social vision; the difficulties in accurately capturing and translating the nature and nuance of social problems to software developers; and the ongoing issues in putting together a methodology that encourages active user participation throughout the software development process Overcoming difficult barriers such as culture and language is part of the process.	Qualitative

Carillo, K., Huff, S., & Chawner, B. (2017).	What makes a good contributor? Understanding contributor behavior within large Free/Open Source Software projects–A socialization perspective	The result of this paper indicates that social integrity and social identification has a positive impact on the OSS project sustainability and improving the performance of newcomers enter the project	Mixed Methods
Li, X. (2018).	Understanding the impacts of offline and online social influence on open source software project success.	The main results showing that geographical distance hurts OSS and face-to-face interactions between OS project developers increase the project performance. Online social interactions have a positive impact at the start of the project, but it is likely to decrease later	Quantitative

A2.7. PE

Author & Year	Article Name	Key Findings	Research Method
Ghapanchi, A. H., & Aurum, A. (2012).	The impact of project capabilities on project performance: Case of open source software projects.	The results are showing that higher project performance depends on the OSS capabilities such as functional enhancement, efficient defect removal in the project code	Quantitative
McDonald, N., & Goggins, S. (2013).	Performance and participation in open source software on Github.	The results are showing that code quality and contributors' involvement is the main factors for the project performance	Qualitative
Armbrust, M., Das, T., Davidson, A., Ghodsi, A., Or, A., Rosen, J., ... & Zaharia, M. (2015).	Scaling spark in the real world: performance and usability.	This paper's goal is to improve the performance of the open-source tool Apache Spark. When OSS features are increases users, performance will be improving	Experiment

Ghapanchi, A. H. (2015).	Investigating the interrelationships among success measures of open source software projects.	The results showing that users, participation interest has positively impacted by project activity, performance, speed of project release and sustainability	Quantitative
Wang, J., Shih, P. C., & Carroll, J. M. (2015).	Revisiting Linus's law: Benefits and challenges of open source software peer review.	Different types of member differences increase the frustration and workload in peer review processes. Also, these differences are influencing the performance and production of developers and users' communities	Mixed Methods
Cai, Y., & Zhu, D. (2016).	Reputation in an open source software community: Antecedents and impacts.	The paper finds is the developer's experience, the coding SQ and behavior are the main factors for their high reputation and their reputation would be useful to achieve the project performance	Quantitative
Kim, Y., & Chae, M. (2016).	The Effect on the Job Performance of Open Source Software Usage in Software Development.	Findings of this paper presenting that Organisation context and technical benefits of OSS has a significant effect on OSS usage and the Use of OSS and OSS satisfaction has influenced the performance of users in the Job	Qualitative
Alarcon, G. M., Gibson, A. M., Walter, C., Gamble, R. F., Ryan, T. J., Jessup, S. A., ... & Capiola, A. (2020).	Trust Perceptions of Metadata in Open-Source Software: The Role of Performance and Reputation.	The results showing that participants spending more time and use to click the OSS website more often if it has a high reputation and performance attribute is considering only when the software has a high reputation in the market	Qualitative

A2.8. EE

Author & Year	Article Name	Key Findings	Research Method

Terry, M., Kay, M., & Lafreniere, B. (2010, April).	Perceptions and practices of usability in the free/open source software (FOSS) community.	The researchers interviewed 12 developers to know their usability experience and found that OSS is learnable and easy to communicate with developers improving the usability	Qualitative
Li, Y., Tan, C. H., Xu, H., & Teo, H. H. (2011).	Open source software adoption: motivations of adopters and motivation of non-adopters.	The users who adopt OSS are extensively by intrinsic motivations such as pleasure and satisfaction in learning and the use of the new product	Quantitative
Raza, A., Capretz, L. F., & Ahmed, F. (2012).	Users' perception of open source usability: an empirical study.	This paper found that many available OSS products are very easy to use due to the availability of end-user guidelines and documentation	Quantitative
Mtebe, J. S., & Raisamo, R. (2014).	Challenges and instructors' intention to adopt and use open educational resources in higher education in Tanzania.	The research found that EE has a significant effect on users in selecting OSS	Quantitative
Zuiderwijk, A., Janssen, M., & Dwivedi, Y. K. (2015).	Acceptance and use predictors of open data technologies: Drawing upon the unified theory of acceptance and use of technology.	This paper suggests that training, educating users and other strategies are used to decrease the effort of using OSS	Quantitative
Pinto, G. H. L., Figueira Filho, F., Steinmacher, I., & Gerosa, M. A. (2017).	Training software engineers using open-source software: the professors' perspective.	The research on software engineering students learning OSS indicates that learning increasing the technical skills and social skills	Qualitative
Alrawashdeh, T. A., Elbes, M. W., Almomani, A., ElQirem, F., & Tamimi, A. (2020).	User acceptance model of open source software: an integrated model of OSS characteristics and UTAUT.	This paper identified that learning, ease to use, clear understanding of OSS features are main factors to improve the adaptability	Quantitative

Henrico, S., Coetzee, S., Cooper, A., & Rautenbach, V. (2021).	Acceptance of open source geospatial software: Assessing QGIS in South Africa with the UTAUT2 model.	Key findings are easy of using software i.e., EE and PE of OSS motivated to adopt open-source alternatives in South Africa when compared to CM, SQ, and other factors	Mixed Methods

A2.9. BI

Author & Year	Article Name	Key Findings	Research Method
Gallego, M. D., Bueno, S., Racero, F. J., & Noyes, J. (2015).	Open source software: The effects of training on acceptance. Computers in Human Behavior, 49, 390-399.	The study found that technical and individual issues influence the behavior of users on acceptance of the system	Quantitative
Silic, M., Barlow, J., & Back, A. (2018).	Evaluating the role of trust in adoption: a conceptual replication in the context of open source systems.	User trust is an important factor to decide the use of OSS	Quantitative

A3. Survey Questions

No	Survey Question
S1	Are you an IT Professional and age above 18 years old? (If not, Please Quit, If Yes Continue.) ☐ Yes ☐ NO
S2	Are you familiar with the term Open Source Software in India? (If not, Please Quit, If Yes Continue.) ☐ Yes ☐ No
S3	What is your gender? ☐ Male ☐ Female ☐ Others ☐ Do not want to state
S4	What is the total employee count in your organization? ☐ 1-50 ☐ 51-100 ☐ 101-500 ☐ 501-1000 ☐ 1000+
S5	What is your current role? ☐ Software engineer ☐ Software developer ☐ Team lead

	☐ Software architect ☐ Project manager ☐ Testing engineer ☐ System administrator ☐ A staff member of operations ☐ Other _____ (Please specify)
S6	What is your overall experience in your profession? ☐ 1-5 years ☐ 5-10 years ☐ 10-15 years ☐ 15 +
S7	What Type of Software are you aware of in the below list? Choose all that apply. ☐Proprietary Software ☐Open Source Software ☐ Pirated Software ☐ Freeware ☐ Other _____(Please mention).
S8	How often do you find open source options over other types of software? ☐ Always ☐ Sometimes ☐ Rarely ☐ Never
S9	Which of the following open source product you are already using? (please select multiple options that apply) ☐ Linux (Operating system based on UNIX) ☐ Apache (HTTP web browser) ☐ Moodle (Course Management System) ☐ Mozilla Firefox (Web Browser) ☐ Mozilla Thunderbird (Email Client) ☐ Open Office (Office Suit) ☐ Open Solaries (Unix Operating system from Sun Microsystems) ☐ Mediawiki (Wiki server Software) ☐ Drupal (Content Management System) ☐ WordPress (Most important blogging platform) ☐ Magento (Fastest growing e-commerce platform) ☐ FileZila (FTP Client) ☐ GIMP (Image Editor)

	☐ VLC (Media Player) ☐ Pidgin (Instant messaging tool) ☐ Notepad++(Windows based CSS editor) ☐ 7-zip (to unzip folders) ☐ Blender (3D content creation) ☐ PDFCreator (Create PDF files) ☐ TrueCrypt (Encryption Program) ☐ Other____ (Please mention)
S10	How often do you use above mentioned Open source software products? ☐ Rarely ☐ Occasionally ☐ Frequently
S11	What is your motivation behind using Open Source software? (Choose all that apply) ☐ My organization moving towards open source ☐ OSS enables me to accomplish tasks more quickly ☐ We can be able to modify and use the software as per the requirements ☐ Using OSS increases the efficiency of the job. ☐ Other ____ (Please specify)
S12	Using OSS enhances the effectiveness of users at the workplace ☐Strongly agree ☐Agree ☐Neither agree nor disagree ☐Disagree ☐Strongly disagree
S13	Using OSS enhances productivity at the workplace ☐Strongly agree ☐Agree ☐Neither agree nor disagree ☐Disagree ☐Strongly disagree
S14	Open-source software is generally more comfortable to use than closed/proprietary ☐Strongly agree ☐Agree

	☐Neither agree nor disagree ☐Disagree ☐Strongly disagree
S15	Open-source software is generally more secure than closed/proprietary ☐Strongly agree ☐Agree ☐Neither agree nor disagree ☐Disagree ☐Strongly disagree
S16	Open-source software is generally cheaper than closed/proprietary ☐Strongly agree ☐Agree ☐Neither agree nor disagree ☐Disagree ☐Strongly disagree
S17	Open-source software generally has less maintenance than closed/proprietary Strongly agree ☐Agree ☐Neither agree nor disagree ☐Disagree ☐Strongly disagree
S18	Open-source software is generally more stable than closed/proprietary ☐Strongly agree ☐Agree ☐Neither agree nor disagree ☐Disagree ☐Strongly disagree
S19	Open-source software is generally more flexible than closed/proprietary ☐Strongly agree ☐Agree

	☐Neither agree nor disagree ☐Disagree ☐Strongly disagree
S20	Open-source software coding quality is generally higher than closed/proprietary ☐Strongly agree ☐Agree ☐Neither agree nor disagree ☐Disagree ☐Strongly disagree
S21	OSS faces a lot of competition from proprietary software in terms of credibility ☐Strongly agree ☐Agree ☐Neither agree nor disagree ☐Disagree ☐Strongly disagree
S22	Support is readily available from the OSS community whenever required. ☐Strongly agree ☐Agree ☐Neither agree nor disagree ☐Disagree ☐Strongly disagree
S23	Learning to use OSS is easy ☐Strongly agree ☐Agree ☐Neither agree nor disagree ☐Disagree ☐Strongly disagree
S24	How often do you modify Open source software products for your requirements? ☐ Rarely ☐ Occasionally ☐ Frequently ☐ Never

S25	Which of the following challenges did you face while using Open-source Software? (Please select multiple options if applicable) ☐ User training/learning costs ☐ Lack of or low-quality documentation (user manuals) ☐ Community, support, and maintenance ☐ Compatibility concerns ☐ Complex licensing situation ☐ Coding Standards ☐ Security ☐ Other _____(Please mention)
S26	How did you solve the issues you face? Please select all that apply from the below list of solutions. ☐ Posted issue on a public forum and got help. ☐ Got help from a specific person ☐ Found solution from the documentation ☐ Other ___ (please describe)
S27	In your opinion, which if the following are the advantages of OSS? (Choose all that apply) ☐ Open Standards ☐ Security ☐ Cost and License fees ☐ Quality and reliability ☐ Innovation ☐ Flexibility ☐ Transparency ☐ Other____ (please specify)
S28	What is your overall satisfaction with open source software? ☐Excellent ☐Very Good

	☐Good ☐Bad ☐Poor

A4. Coding for the Survey Questions Answers

Table 73 S1 Coding

IT Pro & Age>18	Code
Yes	1
No	2

Table 74 S2 Coding

Familiar with OSS?	Code
Yes	1
No	2

Table 75 S3 Coding

Gender	Code
Male	1
Female	2
Others	3
Prefer not to say	4
NotAnswered	0

Table 76 S4 Coding

Total Employee Count in the Organisation	Code
1-50	1
51-100	2
101-500	3
501-1000	4
1000+	5
NotAnswered	0

Table 77 S5 Coding

Current Job Role	Code

Software Engineer	1
Software Developer	2
Testing Engineer	3
System Administrator	4
Team Lead	5
Software Architect	6
Project Manager	7
IT Service Management	8
Business Analyst	9
IT Finance	10
Director	11
Digital Marketing	12
Learning Management	13
None	14
Not Answered	0

Table 78 S6 Coding

Experience	Code
1-5 years	1
5-10 years	2
10-15 years	3
15 +	4
NotAnswered	0

Table 79 S8 Coding

Is OSS alternative ?	Code
Always	1
Sometimes	2
Rarely	3
Never	4
NotAnswered	0

Table 80 S10 Coding

OSS Products Usage	Code
Rarely	1
Occasionally	2
Frequently	3
NotAnswered	0

Table 81 S12 to S23 Coding

Answer	Code
Strongly agree	1
Agree	2
Neither agree nor disagree	3
Disagree	4
Strongly disagree	5
NotAnswered	0

Table 82 S24 Coding

OSS Modification	Code
Rarely	1
Occasionally	2
Frequently	3
Never	4
NotAnswered	0

Table 83 S28 Coding

OSS User Satisfaction	Code
Excellent	1
Very Good	2
Good	3
Bad	4
Poor	5
NotAnswered	0

A5. Survey Question and Labels

Survey question No.	Label in "variable view" in SPSS
S1	S1 IT Pro & Age>18
S2	S2 Familiar with OSS?
S3	S3 Gender
S4	S4 Total Employee Count in the Organisation
S5	S5 Current Job Role
S6	S6 Experience
S7_1	S7_1 Type of Software - PS
S7_3	S7_3 Type of Software - Pirated Software
S7_4	S7_4 Type of Software - Freeware
S7_6	S7_6 Type of Software - NotAnswered
S7_5	S7_5 Type of Software - Other
S7_5_TEXT	S7_5_T Type of Software - Other - Text
S8	S8 Is OSS alternative ?
S9_1	S9_1 OSS Product Linux (Operating system based on UNIX)
S9_2	S9_2 OSS Product Apache (HTTP web browser)
S9_3	S9_3 OSS Product Moodle (Course Management System)
S9_4	S9_4 OSS Product Mozilla Firefox (Web Browser)
S9_5	S9_5 OSS Product Mozilla Thunderbird (Email Client)
S9_6	S9_6 OSS Product Open Office (Office Suit)
S9_7	S9_7 OSS Product Open Solaries (Unix Operating system from Sun Microsystems)
S9_8	S9_8 OSS Product Mediawiki (Wiki server Software)
S9_9	S9_9 OSS Product Drupal (Content Management System)
S9_10	S9_10 OSS Product WordPress (Most important blogging platform)
S9_11	S9_11 OSS Product Magento (Fastest growing e-commerce platform)
S9_12	S9_12 OSS Product FileZila (FTP Client)
S9_13	S9_13 OSS Product GIMP (Image Editor)
S9_14	S9_14 OSS Product VLC (Media Player)
S9_15	S9_15 OSS Product Pidgin (Instant messaging tool)
S9_16	S9_16 OSS Product Notepad++(Windows based CSS editor)
S9_17	S9_17 OSS Product 7-zip (to unzip folders)
S9_18	S9_18 OSS Product Blender (3D content creation)
S9_19	S9_19 OSS Product PDFCreator (Create PDF files)
S9_20	S9_20 OSS Product TrueCrypt (Encryption Program)
S9_22	S9_22 OSS Product Selinium
S9_23	S9_23 OSS Product None
S9_24	S9_24 OSS Product NotAnswered
S9_21	S9_21 OSS Product Other
S9_21_TEXT	S9_21_T OSS Product Other -Text
S10	S10 OSS Products Usage

S11_1	S11_1 Motivation for OSS usage - My organization moving towards open source
S11_2	S11_2 Motivation for OSS usage - OSS enables me to accomplish tasks more quickly
S11_3	S11_3 Motivation for OSS usage - We can be able to modify and use the software as per the requirements
S11_4	S11_4 Motivation for OSS usage - Using OSS increases the efficiency of the job.
S11_6	S11_6 Motivation for OSS usage - There are no alternatives to do the job as good as OSS does
S11_7	S11_7 Motivation for OSS usage - Most of the above are free to use
S11_8	S11_8 Motivation for OSS usage - NotAnswered
S11_5	S11_5 Motivation for OSS usage - Other
S11_5_TEXT	S11_5_T Motivation for OSS usage - Other - Text
S12	S12 OSS - Enhances Effectiveness
S13	S13 OSS - Enhances Productivity
S14	S14 OSS VS PS - Comfortable to use
S15	S15 OSS VS PS - Security
S16	S16 OSS VS PS - Cost
S17	S17 OSS VS PS - Maintenance
S18	S18 OSS VS PS - Stable
S19	S19 OSS VS PS - Flexible
S20	S20 OSS VS PS - SQ
S21	S21 OSS VS PS - Credibility
S22	S22 OSS - Community Support
S23	S23 OSS - Easy Learning
S24	S24 OSS Modification
S25_1	S25_1 Challenges of using OSS - User training/learning costs
S25_2	S25_2 Challenges of using OSS - Lack of or low-SQ documentation (user manuals)
S25_3	S25_3 Challenges of using OSS - Community, support, and maintenance
S25_4	S25_4 Challenges of using OSS - Compatibility concerns
S25_5	S25_5 Challenges of using OSS - Complex licensing situation
S25_6	S25_6 Challenges of using OSS - Coding Standards
S25_7	S25_7 Challenges of using OSS - Security
S25_9	S25_9 Challenges of using OSS - None
S25_10	S25_10 Challenges of using OSS - NotAnswered
S25_8	S25_8 Challenges of using OSS - Other
S25_8_TEXT	S25_8_T Challenges of using OSS - Other-Text
S26_1	S26_1 Solution for OSS issues - Posted issue on a public forum and got help.
S26_2	S26_2 Solution for OSS issues - Got help from a specific person
S26_3	S26_3 Solution for OSS issues - Found solution from the documentation
S26_5	S26_5 Solution for OSS issues - All of the above
S26_6	S26_6 Solution for OSS issues - Can't find any issue
S26_7	S26_7 Solution for OSS issues - Using less OSS
S26_8	S26_8 Solution for OSS issues - Google search

S26_9	S26_9 Solution for OSS issues - NotAnswered
S26_4	S26_4 Solution for OSS issues - Other
S26_4_TEXT	S26_4_T Solution for OSS issues - Other- Text
S27_1	S27_1 Advantages of OSS - Open Standards
S27_2	S27_2 Advantages of OSS - SEC
S27_3	S27_3 Advantages of OSS - Cost and License fees
S27_4	S27_4 Advantages of OSS - SQ and reliability
S27_5	S27_5 Advantages of OSS - Innovation
S27_6	S27_6 Advantages of OSS - Flexibility
S27_7	S27_7 Advantages of OSS - Transparency
S27_9	S27_9 Advantages of OSS - Monitor,analyze
S27_10	S27_10 Advantages of OSS - All the above
S27_11	S27_11 Advantages of OSS - NotAnswered
S27_8	S27_8 Advantages of OSS - Other
S27_8_TEXT	S27_8_T Advantages of OSS - Other - Text
S28	S28 OSS User Satisfaction

A6. Chi-Square Tests

A6.1. SEC->PE

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
S15 OSS VS PS - SEC * S12 OSS - Enhances Effectiveness	403	100.0%	0	0.0%	403	100.0%
S15 OSS VS PS - SEC * S13 OSS - Enhances Productivity	403	100.0%	0	0.0%	403	100.0%
S15 OSS VS PS - SEC * S21 OSS VS PS - Credibility	403	100.0%	0	0.0%	403	100.0%
S15 OSS VS PS - SEC * S24 OSS Modification	403	100.0%	0	0.0%	403	100.0%

S15 OSS VS PS - SEC * S12 OSS - Enhances Effectiveness

Crosstab

Count

		S12 OSS - Enhances Effectiveness						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S15 OSS VS PS – SEC	NotAnswered	79	1	8	1	0	1	90
	Strongly agree	0	38	13	3	0	0	54
	Agree	1	25	129	4	3	0	162
	Neither agree nor disagree	0	15	22	20	5	0	62
	Disagree	0	8	8	7	2	1	26

	Strongly disagree	0	0	3	3	3	0	9
Total		80	87	183	38	13	2	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	537.769[a]	25	.000
Likelihood Ratio	469.810	25	.000
Linear-by-Linear Association	184.399	1	.000
N of Valid Cases	403		

a. 16 cells (44.4%) have expected count less than 5. The minimum expected count is .04.

S15 OSS VS PS- SEC * S13 OSS - Enhances Productivity

Crosstab

Count

		S13 OSS - Enhances Productivity						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S15 OSS VS PS- SEC	NotAnswered	89	0	1	0	0	0	90
	Strongly agree	0	38	10	6	0	0	54
	Agree	0	26	127	7	2	0	162
	Neither agree nor disagree	0	16	21	23	1	1	62
	Disagree	0	4	14	4	4	0	26
	Strongly disagree	0	2	2	2	2	1	9
Total		89	86	175	42	9	2	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	609.291[a]	25	.000
Likelihood Ratio	548.090	25	.000
Linear-by-Linear Association	218.391	1	.000
N of Valid Cases	403		

a. 17 cells (47.2%) have expected count less than 5. The minimum expected count is .04.

S15 OSS VS PS- SEC * S21 OSS VS PS- Credibility

Crosstab

Count

		S21 OSS VS PS- Credibility						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
	NotAnswered	88	1	1	0	0	0	90
	Strongly agree	1	23	20	6	4	0	54

S15 OSS VS PS-SEC	Agree	3	14	124	13	8	0	162
	Neither agree nor disagree	0	9	20	24	8	1	62
	Disagree	1	6	10	7	2	0	26
	Strongly disagree	0	1	1	4	2	1	9
Total		93	54	176	54	24	2	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	505.686[a]	25	.000
Likelihood Ratio	462.404	25	.000
Linear-by-Linear Association	186.773	1	.000
N of Valid Cases	403		

a. 16 cells (44.4%) have expected count less than 5. The minimum expected count is .04.

S15 OSS VS PS- SEC * S24 OSS Modification

Crosstab

Count

		S24 OSS Modification					
		NotAnswered	Rarely	Occasionally	Frequently	Never	Total
S15 OSS VS PS-SEC	NotAnswered	87	2	1	0	0	90
	Strongly agree	1	22	19	10	2	54
	Agree	4	36	71	46	5	162
	Neither agree nor disagree	1	22	18	13	8	62
	Disagree	3	8	8	5	2	26
	Strongly disagree	0	3	5	1	0	9
Total		96	93	122	75	17	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	368.141[a]	20	.000
Likelihood Ratio	363.697	20	.000
Linear-by-Linear Association	111.494	1	.000
N of Valid Cases	403		

a. 10 cells (33.3%) have expected count less than 5. The minimum expected count is .38.

A6.2. SQ->PE

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
S18 OSS VS PS- Stable * S12 OSS - Enhances Effectiveness	403	100.0%	0	0.0%	403	100.0%
S18 OSS VS PS- Stable * S13 OSS - Enhances Productivity	403	100.0%	0	0.0%	403	100.0%
S18 OSS VS PS- Stable * S21 OSS VS PS- Credibility	403	100.0%	0	0.0%	403	100.0%
S18 OSS VS PS- Stable * S24 OSS Modification	403	100.0%	0	0.0%	403	100.0%
S20 OSS VS PS- SQ * S12 OSS - Enhances Effectiveness	403	100.0%	0	0.0%	403	100.0%
S20 OSS VS PS- SQ * S13 OSS - Enhances Productivity	403	100.0%	0	0.0%	403	100.0%
S20 OSS VS PS- SQ * S21 OSS VS PS- Credibility	403	100.0%	0	0.0%	403	100.0%
S20 OSS VS PS- SQ * S24 OSS Modification	403	100.0%	0	0.0%	403	100.0%

S18 OSS VS PS- Stable * S12 OSS - Enhances Effectiveness

Crosstab

Count

		S12 OSS - Enhances Effectiveness						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S18 OSS VS PS- Stable	NotAnswered	78	5	8	2	0	1	94
	Strongly agree	1	27	15	4	1	0	48
	Agree	1	32	136	10	2	1	182
	Neither agree nor disagree	0	15	18	15	4	0	52
	Disagree	0	6	4	7	5	0	22
	Strongly disagree	0	2	2	0	1	0	5
Total		80	87	183	38	13	2	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	439.724[a]	25	.000
Likelihood Ratio	389.364	25	.000
Linear-by-Linear Association	155.038	1	.000
N of Valid Cases	403		

a. 20 cells (55.6%) have expected count less than 5. The minimum expected count is .02.

S18 OSS VS PS- Stable * S13 OSS - Enhances Productivity

Crosstab

Count

	S13 OSS - Enhances Productivity						
	NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total

S18 OSS VS PS- Stable	NotAnswered	87	2	4	1	0	0	94
	Strongly agree	2	35	5	5	1	0	48
	Agree	0	33	137	9	2	1	182
	Neither agree nor disagree	0	13	21	16	2	0	52
	Disagree	0	3	6	9	3	1	22
	Strongly disagree	0	0	2	2	1	0	5
Total		89	86	175	42	9	2	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	533.693[a]	25	.000
Likelihood Ratio	484.760	25	.000
Linear-by-Linear Association	218.497	1	.000
N of Valid Cases	403		

a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .02.

S18 OSS VS PS- Stable * S21 OSS VS PS- Credibility

Crosstab

Count

		S21 OSS VS PS- Credibility						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S18 OSS VS PS- Stable	NotAnswered	92	0	1	1	0	0	94
	Strongly agree	1	27	12	6	2	0	48
	Agree	0	12	141	20	9	0	182
	Neither agree nor disagree	0	12	14	20	6	0	52
	Disagree	0	3	6	6	6	1	22
	Strongly disagree	0	0	2	1	1	1	5
Total		93	54	176	54	24	2	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	595.455[a]	25	.000
Likelihood Ratio	529.259	25	.000
Linear-by-Linear Association	223.709	1	.000
N of Valid Cases	403		

a. 16 cells (44.4%) have expected count less than 5. The minimum expected count is .02.

S18 OSS VS PS- Stable * S24 OSS Modification

Crosstab

Count

		S24 OSS Modification					
		NotAnswered	Rarely	Occasionally	Frequently	Never	Total
S18 OSS VS PS- Stable	NotAnswered	91	1	1	1	0	94
	Strongly agree	0	19	13	14	2	48
	Agree	2	44	87	43	6	182
	Neither agree nor disagree	0	22	15	6	9	52
	Disagree	3	4	6	9	0	22
	Strongly disagree	0	3	0	2	0	5
Total		96	93	122	75	17	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	415.366[a]	20	.000
Likelihood Ratio	416.958	20	.000
Linear-by-Linear Association	122.660	1	.000
N of Valid Cases	403		

a. 10 cells (33.3%) have expected count less than 5. The minimum expected count is .21.

S20 OSS VS PS- SQ * S12 OSS - Enhances Effectiveness

Crosstab

Count

		S12 OSS - Enhances Effectiveness						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S20 OSS VS PS- SQ	NotAnswered	78	5	7	2	0	0	92
	Strongly agree	2	27	14	4	1	0	48
	Agree	0	34	126	9	2	0	171
	Neither agree nor disagree	0	15	30	16	6	2	69
	Disagree	0	4	5	7	2	0	18
	Strongly disagree	0	2	1	0	2	0	5
Total		80	87	183	38	13	2	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)

Pearson Chi-Square	441.400[a]	25	.000
Likelihood Ratio	391.214	25	.000
Linear-by-Linear Association	178.376	1	.000
N of Valid Cases	403		

a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .02.

S20 OSS VS PS- SQ * S13 OSS - Enhances Productivity

Crosstab

Count

		S13 OSS - Enhances Productivity						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S20 OSS VS PS- SQ	NotAnswered	86	2	4	0	0	0	92
	Strongly agree	1	31	13	2	1	0	48
	Agree	0	30	128	11	2	0	171
	Neither agree nor disagree	2	19	26	18	3	1	69
	Disagree	0	4	4	8	1	1	18
	Strongly disagree	0	0	0	3	2	0	5
Total		89	86	175	42	9	2	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	526.782[a]	25	.000
Likelihood Ratio	463.149	25	.000
Linear-by-Linear Association	212.836	1	.000
N of Valid Cases	403		

a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .02.

S20 OSS VS PS- SQ * S21 OSS VS PS- Credibility

Crosstab

Count

		S21 OSS VS PS- Credibility						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
	NotAnswered	91	0	0	0	1	0	92
	Strongly agree	0	30	7	5	6	0	48

S20 OSS VS PS-SQ	Agree	1	11	144	13	2	0	171
	Neither agree nor disagree	1	11	21	29	7	0	69
	Disagree	0	2	2	6	8	0	18
	Strongly disagree	0	0	2	1	0	2	5
Total		93	54	176	54	24	2	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	808.710[a]	25	.000
Likelihood Ratio	601.021	25	.000
Linear-by-Linear Association	233.462	1	.000
N of Valid Cases	403		
a. 17 cells (47.2%) have expected count less than 5. The minimum expected count is .02.			

S20 OSS VS PS- SQ * S24 OSS Modification

Crosstab							
Count							
		S24 OSS Modification					Total
		NotAnswered	Rarely	Occasionally	Frequently	Never	
S20 OSS VS PS-SQ	NotAnswered	90	1	1	0	0	92
	Strongly agree	0	22	11	12	3	48
	Agree	3	45	74	44	5	171
	Neither agree nor disagree	2	19	29	11	8	69
	Disagree	0	4	6	7	1	18
	Strongly disagree	1	2	1	1	0	5
Total		96	93	122	75	17	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	387.920[a]	20	.000
Likelihood Ratio	391.890	20	.000
Linear-by-Linear Association	134.500	1	.000
N of Valid Cases	403		
a. 12 cells (40.0%) have expected count less than 5. The minimum expected count is .21.			

A6.3. PE->BI

Case Processing Summary			
	Cases		
	Valid	Missing	Total

	N	Percent	N	Percent	N	Percent
S12 OSS - Enhances Effectiveness * S10 OSS Products Usage	403	100.00%	0	0.00%	403	100.00%
S12 OSS - Enhances Effectiveness * S28 OSS User Satisfaction	403	100.00%	0	0.00%	403	100.00%
S13 OSS - Enhances Productivity * S10 OSS Products Usage	403	100.00%	0	0.00%	403	100.00%
S13 OSS - Enhances Productivity * S28 OSS User Satisfaction	403	100.00%	0	0.00%	403	100.00%
S21 OSS VS PS- Credibility * S10 OSS Products Usage	403	100.00%	0	0.00%	403	100.00%
S21 OSS VS PS- Credibility * S28 OSS User Satisfaction	403	100.00%	0	0.00%	403	100.00%
S24 OSS Modification * S10 OSS Products Usage	403	100.00%	0	0.00%	403	100.00%
S24 OSS Modification * S28 OSS User Satisfaction	403	100.00%	0	0.00%	403	100.00%

S12 OSS - Enhances Effectiveness * S10 OSS Products Usage

Crosstab

Count

		S28 OSS User Satisfaction						
		Excellent	Very Good	Good	Bad	Poor	NotAnswered	Total
S12 OSS - Enhances Effectiveness	Strongly agree	38	26	17	0	0	6	87
	Agree	31	107	37	1	1	6	183
	Neither agree nor disagree	7	8	19	1	0	3	38
	Disagree	2	0	7	4	0	0	13
	Strongly disagree	0	0	1	0	0	1	2
	NotAnswered	2	4	0	0	0	74	80
Total		80	145	81	6	1	90	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	437.870[a]	25	.000
Likelihood Ratio	352.890	25	.000
Linear-by-Linear Association	160.843	1	.000
N of Valid Cases	403		

a. 20 cells (55.6%) have expected count less than 5. The minimum expected count is .00.

S13 OSS - Enhances Productivity * S10 OSS Products Usage

Crosstab

Count

	S10 OSS Products Usage				
	Rarely	Occasionally	Frequently	NotAnswered	Total

S13 OSS - Enhances Productivity	Strongly agree	25	25	36	0	86
	Agree	37	54	81	3	175
	Neither agree nor disagree	15	16	10	1	42
	Disagree	3	3	3	0	9
	NotAnswered	3	6	0	80	89
	Strongly disagree	1	0	1	0	2
Total		84	104	131	84	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	343.565[a]	15	.000
Likelihood Ratio	335.386	15	.000
Linear-by-Linear Association	109.488	1	.000
N of Valid Cases	403		

a. 8 cells (33.3%) have expected count less than 5. The minimum expected count is .42.

S13 OSS - Enhances Productivity * S28 OSS User Satisfaction

Crosstab

Count

		S28 OSS User Satisfaction						
		Excellent	Very Good	Good	Bad	Poor	NotAnswered	Total
S13 OSS - Enhances Productivity	Strongly agree	35	31	15	1	0	4	86
	Agree	31	103	37	0	1	3	175
	Neither agree nor disagree	9	7	24	1	0	1	42
	Disagree	1	0	5	3	0	0	9
	Strongly disagree	1	0	0	1	0	0	2
	NotAnswered	3	4	0	0	0	82	89
Total		80	145	81	6	1	90	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	491.903[a]	25	.000
Likelihood Ratio	396.295	25	.000
Linear-by-Linear Association	188.618	1	.000
N of Valid Cases	403		

a. 20 cells (55.6%) have expected count less than 5. The minimum expected count is .00.

S21 OSS VS PS- Credibility * S10 OSS Products Usage

Crosstab

Count

		S10 OSS Products Usage				
		Rarely	Occasionally	Frequently	NotAnswered	Total
S21 OSS VS PS- Credibility	Strongly agree	16	16	21	1	54
	Agree	40	52	82	2	176
	Neither agree nor disagree	18	16	18	2	54
	Disagree	5	11	8	0	24
	Strongly disagree	0	2	0	0	2
	NotAnswered	5	7	2	79	93
Total		84	104	131	84	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	315.992[a]	15	.000
Likelihood Ratio	300.846	15	.000
Linear-by-Linear Association	112.274	1	.000
N of Valid Cases	403		

a. 4 cells (16.7%) have expected count less than 5. The minimum expected count is .42.

S21 OSS VS PS- Credibility * S28 OSS User Satisfaction

Crosstab

Count

		S28 OSS User Satisfaction						
		Excellent	Very Good	Good	Bad	Poor	NotAnswered	Total
S21 OSS VS PS- Credibility	Strongly agree	25	12	14	1	0	2	54
	Agree	35	103	36	0	0	2	176
	Neither agree nor disagree	11	19	21	2	0	1	54
	Disagree	6	6	9	2	0	1	24
	Strongly disagree	0	0	1	1	0	0	2
	NotAnswered	3	5	0	0	1	84	93
Total		80	145	81	6	1	90	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	418.511[a]	25	.000
Likelihood Ratio	376.720	25	.000
Linear-by-Linear Association	159.473	1	.000
N of Valid Cases	403		
a. 18 cells (50.0%) have expected count less than 5. The minimum expected count is .00.			

S24 OSS Modification * S10 OSS Products Usage

Crosstab						
Count						
		S10 OSS Products Usage				
		Rarely	Occasionally	Frequently	NotAnswered	Total
S24 OSS Modification	Rarely	34	20	35	4	93
	Occasionally	25	56	41	0	122
	Frequently	14	15	44	2	75
	Never	5	4	8	0	17
	NotAnswered	6	9	3	78	96
Total		84	104	131	84	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	316.740[a]	12	.000
Likelihood Ratio	302.046	12	.000
Linear-by-Linear Association	133.040	1	.000
N of Valid Cases	403		
a. 3 cells (15.0%) have expected count less than 5. The minimum expected count is 3.54.			

S24 OSS Modification * S28 OSS User Satisfaction

Crosstab								
Count								
		S28 OSS User Satisfaction						
		Excellent	Very Good	Good	Bad	Poor	NotAnswered	Total
S24 OSS Modification	Rarely	31	39	21	2	0	0	93
	Occasionally	20	59	38	2	0	3	122
	Frequently	25	37	11	2	0	0	75
	Never	1	6	10	0	0	0	17
	NotAnswered	3	4	1	0	1	87	96
Total		80	145	81	6	1	90	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	376.228[a]	20	.000
Likelihood Ratio	373.934	20	.000
Linear-by-Linear Association	126.322	1	.000
N of Valid Cases	403		
a. 13 cells (43.3%) have expected count less than 5. The minimum expected count is .04.			

A6.4. SI->B

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
S22 OSS - Community Support * S10 OSS Products Usage	403	100.0%	0	0.0%	403	100.0%
S22 OSS - Community Support * S28 OSS User Satisfaction	403	100.0%	0	0.0%	403	100.0%

S22 OSS - Community Support * S10 OSS Products Usage

Crosstab						
Count						
		S10 OSS Products Usage				
		Rarely	Occasionally	Frequently	NotAnswered	Total
S22 OSS - Comunity Support	Strongly agree	17	17	30	2	66
	Agree	38	53	70	2	163
	Neither agree nor disagree	19	20	22	0	61
	Disagree	5	5	7	0	17
	Strongly disagree	0	1	0	1	2
	NotAnswered	5	8	2	79	94
Total		84	104	131	84	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	305.838[a]	15	.000
Likelihood Ratio	298.727	15	.000
Linear-by-Linear Association	105.717	1	.000
N of Valid Cases	403		

a. 7 cells (29.2%) have expected count less than 5. The minimum expected count is .42.

S22 OSS - Community Support * S28 OSS User Satisfaction

Crosstab

Count

		S28 OSS User Satisfaction						
		NotAnswered	Excellent	Very Good	Good	Bad	Poor	Total
S22 OSS - Community Support	NotAnswered	84	3	6	0	0	1	94
	Strongly agree	2	28	26	9	1	0	66
	Agree	3	32	89	39	0	0	163
	Neither agree nor disagree	1	14	21	23	2	0	61
	Disagree	0	3	3	9	2	0	17
	Strongly disagree	0	0	0	1	1	0	2
Total		90	80	145	81	6	1	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	411.658[a]	25	.000
Likelihood Ratio	367.259	25	.000
Linear-by-Linear Association	174.120	1	.000
N of Valid Cases	403		

a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .00.

A6.5. EE ->BI

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
S14 OSS VS PS- Comfortable to use * S10 OSS Products Usage	403	100.0%	0	0.0%	403	100.0%
S14 OSS VS PS- Comfortable to use * S28 OSS User Satisfaction	403	100.0%	0	0.0%	403	100.0%
S19 OSS VS PS- Flexible * S10 OSS Products Usage	403	100.0%	0	0.0%	403	100.0%
S19 OSS VS PS- Flexible * S28 OSS User Satisfaction	403	100.0%	0	0.0%	403	100.0%

S23 OSS - Easy Learning * S10 OSS Products Usage	403	100.0%	0	0.0%	403	100.0%
S23 OSS - Easy Learning * S28 OSS User Satisfaction	403	100.0%	0	0.0%	403	100.0%

S14 OSS VS PS- Comfortable to use * S10 OSS Products Usage

Crosstab

Count

		S10 OSS Products Usage				
		NotAnswered	Rarely	Occasionally	Frequently	Total
S14 OSS VS PS- Comfortable to use	NotAnswered	80	3	8	0	91
	Strongly Agree	0	28	16	23	67
	Agree	3	34	58	86	181
	Neither agree nor disagree	0	16	15	14	45
	Disagree	0	3	5	5	13
	Strongly disagree	1	0	2	3	6
Total		84	84	104	131	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	346.207[a]	15	.000
Likelihood Ratio	342.095	15	.000
Linear-by-Linear Association	124.920	1	.000
N of Valid Cases	403		

a. 8 cells (33.3%) have expected count less than 5. The minimum expected count is 1.25.

S14 OSS VS PS- Comfortable to use * S28 OSS User Satisfaction

Crosstab

Count

		S28 OSS User Satisfaction						
		NotAnswered	Excellent	Very Good	Good	Bad	Poor	Total
S14 OSS VS PS- Comfortable to use	NotAnswered	82	3	4	1	0	1	91
	Strongly Agree	3	36	17	11	0	0	67
	Agree	3	30	110	36	2	0	181
	Neither agree nor disagree	1	8	11	25	0	0	45
	Disagree	0	1	3	7	2	0	13
	Strongly disagree	1	2	0	1	2	0	6

Total	90	80	145	81	6	1	403

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	475.811[a]	25	.000
Likelihood Ratio	399.095	25	.000
Linear-by-Linear Association	173.169	1	.000
N of Valid Cases	403		

a. 20 cells (55.6%) have expected count less than 5. The minimum expected count is .01.

S19 OSS VS PS- Flexible * S10 OSS Products Usage

Crosstab						
Count						
		S10 OSS Products Usage				
		NotAnswered	Rarely	Occasionally	Frequently	Total
S19 OSS VS PS- Flexible	NotAnswered	79	4	7	3	93
	Strongly agree	3	24	15	22	64
	Agree	2	33	64	90	189
	Neither agree nor disagree	0	12	11	11	34
	Disagree	0	10	5	4	19
	Strongly disagree	0	1	2	1	4
Total		84	84	104	131	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	330.270[a]	15	.000
Likelihood Ratio	312.183	15	.000
Linear-by-Linear Association	105.315	1	.000
N of Valid Cases	403		

a. 7 cells (29.2%) have expected count less than 5. The minimum expected count is .83.

S19 OSS VS PS- Flexible * S28 OSS User Satisfaction

Crosstab							
Count							
		S28 OSS User Satisfaction					
		NotAnswered	Excellent	Very Good	Good	Bad	Poor	Total
S19 OSS VS PS- Flexible	NotAnswered	84	2	5	1	0	1	93
	Strongly agree	2	36	14	12	0	0	64
	Agree	1	30	114	42	2	0	189

	Neither agree nor disagree	1	9	9	14	1	0	34
	Disagree	1	3	3	10	2	0	19
	Strongly disagree	1	0	0	2	1	0	4
Total		90	80	145	81	6	1	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	443.621[a]	25	.000
Likelihood Ratio	403.843	25	.000
Linear-by-Linear Association	165.973	1	.000
N of Valid Cases	403		
a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .01.			

S23 OSS - Easy Learning * S10 OSS Products Usage

Crosstab						
Count						
		S10 OSS Products Usage				
		NotAnswered	Rarely	Occasionally	Frequently	Total
S23 OSS - Easy Learning	NotAnswered	79	7	8	3	97
	Strongly agree	2	23	22	27	74
	Agree	2	31	52	88	173
	Neither agree nor disagree	1	14	13	6	34
	Disagree	0	6	8	7	21
	Strongly disagree	0	3	1	0	4
Total		84	84	104	131	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	315.478[a]	15	.000
Likelihood Ratio	300.541	15	.000
Linear-by-Linear Association	93.313	1	.000
N of Valid Cases	403		
a. 6 cells (25.0%) have expected count less than 5. The minimum expected count is .83.			

S23 OSS - Easy Learning * S28 OSS User Satisfaction

Crosstab		
Count		
	S28 OSS User Satisfaction	Total

		NotAnswered	Excellent	Very Good	Good	Bad	Poor	
S23 OSS - Easy Learning	NotAnswered	87	4	5	0	0	1	97
	Strongly agree	2	28	27	16	1	0	74
	Agree	0	35	101	37	0	0	173
	Neither agree nor disagree	1	7	9	16	1	0	34
	Disagree	0	5	3	10	3	0	21
	Strongly disagree	0	1	0	2	1	0	4
Total		90	80	145	81	6	1	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	426.285[a]	25	.000
Likelihood Ratio	403.392	25	.000
Linear-by-Linear Association	168.508	1	.000
N of Valid Cases	403		

a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .01.

A6.6. CM->BI

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
S16 OSS VS PS- Cost * S10 OSS Products Usage	403	100.0%	0	0.0%	403	100.0%
S16 OSS VS PS- Cost * S28 OSS User Satisfaction	403	100.0%	0	0.0%	403	100.0%
S17 OSS VS PS- Maintenance * S10 OSS Products Usage	403	100.0%	0	0.0%	403	100.0%
S17 OSS VS PS- Maintenance * S28 OSS User Satisfaction	403	100.0%	0	0.0%	403	100.0%

S16 OSS VS PS- Cost * S10 OSS Products Usage

Crosstab

Count

		S10 OSS Products Usage				
		NotAnswered	Rarely	Occasionally	Frequently	Total
S16 OSS VS PS- Cost	NotAnswered	81	4	7	2	94
	Strongly agree	1	22	20	30	73
	Agree	0	33	53	84	170
	Neither agree nor disagree	2	17	13	9	41
	Disagree	0	5	7	5	17
	Strongly disagree	0	3	4	1	8
Total		84	84	104	131	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	340.930[a]	15	.000
Likelihood Ratio	333.587	15	.000
Linear-by-Linear Association	90.167	1	.000
N of Valid Cases	403		
a. 7 cells (29.2%) have expected count less than 5. The minimum expected count is 1.67.			

S16 OSS VS PS- Cost * S28 OSS User Satisfaction

Crosstab								
Count								
		S28 OSS User Satisfaction						
		NotAnswered	Excellent	Very Good	Good	Bad	Poor	Total
S16 OSS VS PS- Cost	NotAnswered	82	5	5	1	0	1	94
	Strongly agree	1	33	24	14	1	0	73
	Agree	5	26	101	35	3	0	170
	Neither agree nor disagree	2	13	11	15	0	0	41
	Disagree	0	2	3	11	1	0	17
	Strongly disagree	0	1	1	5	1	0	8
Total		90	80	145	81	6	1	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	385.662[a]	25	.000
Likelihood Ratio	353.572	25	.000
Linear-by-Linear Association	150.564	1	.000
N of Valid Cases	403		
a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .02.			

S17 OSS VS PS- Maintenance * S10 OSS Products Usage

Crosstab					
Count					
		S10 OSS Products Usage			
		NotAnswered	Rarely	Occasionally	Frequently	Total
S17 OSS VS PS- Maintenance	NotAnswered	80	3	7	0	90
	Strongly agree	1	20	20	23	64
	Agree	1	36	52	86	175

	Neither agree nor disagree	2	17	16	15	50
	Disagree	0	6	7	5	18
	Strongly disagree	0	2	2	2	6
Total		84	84	104	131	403

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	339.953[a]	15	.000
Likelihood Ratio	332.481	15	.000
Linear-by-Linear Association	107.106	1	.000
N of Valid Cases	403		
a. 7 cells (29.2%) have expected count less than 5. The minimum expected count is 1.25.			

S17 OSS VS PS- Maintenance * S28 OSS User Satisfaction

Crosstab								
Count								
		S28 OSS User Satisfaction						
		NotAnswered	Excellent	Very Good	Good	Bad	Poor	Total
S17 OSS VS PS-Maintenance	NotAnswered	82	3	4	0	0	1	90
	Strongly agree	1	27	22	13	1	0	64
	Agree	5	28	103	37	2	0	175
	Neither agree nor disagree	2	13	13	22	0	0	50
	Disagree	0	6	3	8	1	0	18
	Strongly disagree	0	3	0	1	2	0	6
Total		90	80	145	81	6	1	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	422.815[a]	25	.000
Likelihood Ratio	372.034	25	.000
Linear-by-Linear Association	138.309	1	.000
N of Valid Cases	403		
a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .01.			

A6.7. BI->OSS

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
S10 OSS Products Usage * S14 OSS VS PS- Comfortable to use	403	100.0%	0	0.0%	403	100.0%
S10 OSS Products Usage * S15 OSS VS PS- SEC	403	100.0%	0	0.0%	403	100.0%
S10 OSS Products Usage * S16 OSS VS PS- Cost	403	100.0%	0	0.0%	403	100.0%
S10 OSS Products Usage * S17 OSS VS PS- Maintenance	403	100.0%	0	0.0%	403	100.0%
S10 OSS Products Usage * S18 OSS VS PS- Stable	403	100.0%	0	0.0%	403	100.0%
S10 OSS Products Usage * S19 OSS VS PS- Flexible	403	100.0%	0	0.0%	403	100.0%
S10 OSS Products Usage * S20 OSS VS PS- SQ	403	100.0%	0	0.0%	403	100.0%
S10 OSS Products Usage * S21 OSS VS PS- Credibility	403	100.0%	0	0.0%	403	100.0%
S10 OSS Products Usage * S2 Familiar with OSS?	403	100.0%	0	0.0%	403	100.0%
S10 OSS Products Usage * S8 Is OSS alternative ?	403	100.0%	0	0.0%	403	100.0%
S28 OSS User Satisfaction * S14 OSS VS PS- Comfortable to use	403	100.0%	0	0.0%	403	100.0%
S28 OSS User Satisfaction * S15 OSS VS PS- SEC	403	100.0%	0	0.0%	403	100.0%
S28 OSS User Satisfaction * S16 OSS VS PS- Cost	403	100.0%	0	0.0%	403	100.0%
S28 OSS User Satisfaction * S17 OSS VS PS- Maintenance	403	100.0%	0	0.0%	403	100.0%
S28 OSS User Satisfaction * S18 OSS VS PS- Stable	403	100.0%	0	0.0%	403	100.0%
S28 OSS User Satisfaction * S19 OSS VS PS- Flexible	403	100.0%	0	0.0%	403	100.0%
S28 OSS User Satisfaction * S20 OSS VS PS- SQ	403	100.0%	0	0.0%	403	100.0%
S28 OSS User Satisfaction * S21 OSS VS PS- Credibility	403	100.0%	0	0.0%	403	100.0%
S28 OSS User Satisfaction * S2 Familiar with OSS?	403	100.0%	0	0.0%	403	100.0%

S28 OSS User Satisfaction * S8 Is OSS alternative ?	403	100.0%	0	0.0%	403	100.0%

S10 OSS Products Usage * S14 OSS VS PS- Comfortable to use

Crosstab

Count

		S14 OSS VS PS- Comfortable to use						
		NotAnswered	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S10 OSS Products Usage	NotAnswered	80	0	3	0	0	1	84
	Rarely	3	28	34	16	3	0	84
	Occasionally	8	16	58	15	5	2	104
	Frequently	0	23	86	14	5	3	131
Total		91	67	181	45	13	6	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	346.207[a]	15	.000
Likelihood Ratio	342.095	15	.000
Linear-by-Linear Association	124.920	1	.000
N of Valid Cases	403		

a. 8 cells (33.3%) have expected count less than 5. The minimum expected count is 1.25.

S10 OSS Products Usage * S15 OSS VS PS- SEC

Crosstab

Count

		S15 OSS VS PS- SEC						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S10 OSS Products Usage	NotAnswered	80	0	2	1	1	0	84
	Rarely	3	23	31	20	5	2	84
	Occasionally	7	11	49	22	11	4	104
	Frequently	0	20	80	19	9	3	131
Total		90	54	162	62	26	9	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	350.472[a]	15	.000
Likelihood Ratio	339.714	15	.000

Linear-by-Linear Association	113.671	1	.000
N of Valid Cases	403		

a. 4 cells (16.7%) have expected count less than 5. The minimum expected count is 1.88.

S10 OSS Products Usage * S16 OSS VS PS- Cost

Crosstab

Count

		S16 OSS VS PS- Cost						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S10 OSS Products Usage	NotAnswered	81	1	0	2	0	0	84
	Rarely	4	22	33	17	5	3	84
	Occasionally	7	20	53	13	7	4	104
	Frequently	2	30	84	9	5	1	131
Total		94	73	170	41	17	8	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	340.930[a]	15	.000
Likelihood Ratio	333.587	15	.000
Linear-by-Linear Association	90.167	1	.000
N of Valid Cases	403		

a. 7 cells (29.2%) have expected count less than 5. The minimum expected count is 1.67.

S10 OSS Products Usage * S17 OSS VS PS- Maintenance

Crosstab

Count

		S17 OSS VS PS- Maintenance						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S10 OSS Products Usage	NotAnswered	80	1	1	2	0	0	84
	Rarely	3	20	36	17	6	2	84
	Occasionally	7	20	52	16	7	2	104
	Frequently	0	23	86	15	5	2	131
Total		90	64	175	50	18	6	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	339.953[a]	15	.000
Likelihood Ratio	332.481	15	.000
Linear-by-Linear Association	107.106	1	.000
N of Valid Cases	403		

a. 7 cells (29.2%) have expected count less than 5. The minimum expected count is 1.25.

S10 OSS Products Usage * S18 OSS VS PS- Stable

Crosstab

Count

		S18 OSS VS PS- Stable						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S10 OSS Products Usage	NotAnswered	80	1	2	0	0	1	84
	Rarely	4	23	35	15	5	2	84
	Occasionally	8	10	57	18	9	2	104
	Frequently	2	14	88	19	8	0	131
Total		94	48	182	52	22	5	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	336.135[a]	15	.000
Likelihood Ratio	324.637	15	.000
Linear-by-Linear Association	119.584	1	.000
N of Valid Cases	403		

a. 6 cells (25.0%) have expected count less than 5. The minimum expected count is 1.04.

S10 OSS Products Usage * S19 OSS VS PS- Flexible

Crosstab

Count

		S19 OSS VS PS- Flexible						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S10 OSS Products Usage	NotAnswered	79	3	2	0	0	0	84
	Rarely	4	24	33	12	10	1	84
	Occasionally	7	15	64	11	5	2	104
	Frequently	3	22	90	11	4	1	131
Total		93	64	189	34	19	4	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	330.270[a]	15	.000
Likelihood Ratio	312.183	15	.000
Linear-by-Linear Association	105.315	1	.000
N of Valid Cases	403		
a. 7 cells (29.2%) have expected count less than 5. The minimum expected count is .83.			

S10 OSS Products Usage * S20 OSS VS PS- SQ

Crosstab								
Count								
		S20 OSS VS PS- SQ						Total
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	
S10 OSS Products Usage	NotAnswered	78	1	2	3	0	0	84
	Rarely	5	18	34	22	3	2	84
	Occasionally	7	11	48	27	8	3	104
	Frequently	2	18	87	17	7	0	131
Total		92	48	171	69	18	5	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	325.179[a]	15	.000
Likelihood Ratio	307.763	15	.000
Linear-by-Linear Association	105.265	1	.000
N of Valid Cases	403		
a. 7 cells (29.2%) have expected count less than 5. The minimum expected count is 1.04.			

S10 OSS Products Usage * S21 OSS VS PS- Credibility

Crosstab								
Count								
		S21 OSS VS PS- Credibility						Total
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	
S10 OSS Products Usage	NotAnswered	79	1	2	2	0	0	84
	Rarely	5	16	40	18	5	0	84
	Occasionally	7	16	52	16	11	2	104

	Frequently	2	21	82	18	8	0	131
Total		93	54	176	54	24	2	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	315.992[a]	15	.000
Likelihood Ratio	300.846	15	.000
Linear-by-Linear Association	112.274	1	.000
N of Valid Cases	403		
a. 4 cells (16.7%) have expected count less than 5. The minimum expected count is .42.			

S10 OSS Products Usage * S2 Familiar with OSS?

Crosstab				
Count				
		S2 Familiar with OSS?		
		Yes	No	Total
S10 OSS Products Usage	NotAnswered	26	58	84
	Rarely	84	0	84
	Occasionally	104	0	104
	Frequently	131	0	131
Total		345	58	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	257.291[a]	3	.000
Likelihood Ratio	228.141	3	.000
Linear-by-Linear Association	152.891	1	.000
N of Valid Cases	403		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.09.			

S10 OSS Products Usage * S8 Is OSS an alternative?

Crosstab							
Count							
		S8 Is OSS alternative?					
		NotAnswered	Always	Sometimes	Rarely	Never	Total
S10 OSS Products Usage	NotAnswered	76	2	2	3	1	84
	Rarely	1	37	28	13	5	84
	Occasionally	0	26	58	15	5	104
	Frequently	0	95	29	2	5	131
Total		77	160	117	33	16	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	425.181[a]	12	.000
Likelihood Ratio	400.389	12	.000
Linear-by-Linear Association	46.374	1	.000
N of Valid Cases	403		

a. 3 cells (15.0%) have expected count less than 5. The minimum expected count is 3.33.

S28 OSS User Satisfaction * S14 OSS VS PS- Comfortable to use

Crosstab								
Count								
		S14 OSS VS PS- Comfortable to use						
		NotAnswered	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S28 OSS User Satisfaction	NotAnswered	82	3	3	1	0	1	90
	Excellent	3	36	30	8	1	2	80
	Very Good	4	17	110	11	3	0	145
	Good	1	11	36	25	7	1	81
	Bad	0	0	2	0	2	2	6
	Poor	1	0	0	0	0	0	1
Total		91	67	181	45	13	6	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	475.811[a]	25	.000
Likelihood Ratio	399.095	25	.000
Linear-by-Linear Association	173.169	1	.000
N of Valid Cases	403		

a. 20 cells (55.6%) have expected count less than 5. The minimum expected count is .01.

S28 OSS User Satisfaction * S15 OSS VS PS- SEC

Crosstab								
Count								
		S15 OSS VS PS- SEC						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
	NotAnswered	82	1	3	1	3	0	90

S28 OSS User Satisfaction	Excellent	3	33	27	15	2	0	80
	Very Good	4	13	101	16	9	2	145
	Good	0	7	30	28	12	4	81
	Bad	0	0	1	2	0	3	6
	Poor	1	0	0	0	0	0	1
Total		90	54	162	62	26	9	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	490.747[a]	25	.000
Likelihood Ratio	411.830	25	.000
Linear-by-Linear Association	177.708	1	.000
N of Valid Cases	403		
a. 16 cells (44.4%) have expected count less than 5. The minimum expected count is .02.			

S28 OSS User Satisfaction * S16 OSS VS PS- Cost

Crosstab								
Count								
		S16 OSS VS PS- Cost						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S28 OSS User Satisfaction	NotAnswered	82	1	5	2	0	0	90
	Excellent	5	33	26	13	2	1	80
	Very Good	5	24	101	11	3	1	145
	Good	1	14	35	15	11	5	81
	Bad	0	1	3	0	1	1	6
	Poor	1	0	0	0	0	0	1
Total		94	73	170	41	17	8	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	385.662[a]	25	.000
Likelihood Ratio	353.572	25	.000
Linear-by-Linear Association	150.564	1	.000
N of Valid Cases	403		
a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .02.			

S28 OSS User Satisfaction * S17 OSS VS PS- Maintenance

Crosstab

Count

		S17 OSS VS PS- Maintenance						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S28 OSS User Satisfaction	NotAnswered	82	1	5	2	0	0	90
	Excellent	3	27	28	13	6	3	80
	Very Good	4	22	103	13	3	0	145
	Good	0	13	37	22	8	1	81
	Bad	0	1	2	0	1	2	6
	Poor	1	0	0	0	0	0	1
Total		90	64	175	50	18	6	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	422.815[a]	25	.000
Likelihood Ratio	372.034	25	.000
Linear-by-Linear Association	138.309	1	.000
N of Valid Cases	403		

a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .01.

S28 OSS User Satisfaction * S18 OSS VS PS- Stable

Crosstab

Count

		S18 OSS VS PS- Stable						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S28 OSS User Satisfaction	NotAnswered	84	1	2	1	2	0	90
	Excellent	3	31	33	9	2	2	80
	Very Good	6	10	107	20	2	0	145
	Good	0	6	39	21	13	2	81
	Bad	0	0	1	1	3	1	6
	Poor	1	0	0	0	0	0	1
Total		94	48	182	52	22	5	403

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	458.623[a]	25	.000
Likelihood Ratio	410.943	25	.000
Linear-by-Linear Association	183.500	1	.000

N of Valid Cases	403		

a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .01.

S28 OSS User Satisfaction * S19 OSS VS PS- Flexible

Crosstab

Count

		S19 OSS VS PS- Flexible						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S28 OSS User Satisfaction	NotAnswered	84	2	1	1	1	1	90
	Excellent	2	36	30	9	3	0	80
	Very Good	5	14	114	9	3	0	145
	Good	1	12	42	14	10	2	81
	Bad	0	0	2	1	2	1	6
	Poor	1	0	0	0	0	0	1
Total		93	64	189	34	19	4	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	443.621[a]	25	.000
Likelihood Ratio	403.843	25	.000
Linear-by-Linear Association	165.973	1	.000
N of Valid Cases	403		

a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .01.

S28 OSS User Satisfaction * S20 OSS VS PS- SQ

Crosstab

Count

		S20 OSS VS PS- SQ						
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
S28 OSS User Satisfaction	NotAnswered	83	1	3	3	0	0	90
	Excellent	2	24	35	17	2	0	80
	Very Good	6	13	100	19	6	1	145
	Good	0	9	33	29	8	2	81
	Bad	0	1	0	1	2	2	6
	Poor	1	0	0	0	0	0	1
Total		92	48	171	69	18	5	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	444.052[a]	25	.000
Likelihood Ratio	380.682	25	.000
Linear-by-Linear Association	172.435	1	.000
N of Valid Cases	403		

a. 19 cells (52.8%) have expected count less than 5. The minimum expected count is .01.

S28 OSS User Satisfaction * S21 OSS VS PS- Credibility

Crosstab

Count

		S21 OSS VS PS- Credibility						Total
		NotAnswered	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	
S28 OSS User Satisfaction	NotAnswered	84	2	2	1	1	0	90
	Excellent	3	25	35	11	6	0	80
	Very Good	5	12	103	19	6	0	145
	Good	0	14	36	21	9	1	81
	Bad	0	1	0	2	2	1	6
	Poor	1	0	0	0	0	0	1
Total		93	54	176	54	24	2	403

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	418.511[a]	25	.000
Likelihood Ratio	376.720	25	.000
Linear-by-Linear Association	159.473	1	.000
N of Valid Cases	403		

a. 18 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

S28 OSS User Satisfaction * S2 Familiar with OSS?

Crosstab

Count

		S2 Familiar with OSS?		Total
		Yes	No	
S28 OSS User Satisfaction	NotAnswered	32	58	90
	Excellent	80	0	80
	Very Good	145	0	145
	Good	81	0	81
	Bad	6	0	6
	Poor	1	0	1
Total		345	58	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	235.622[a]	5	.000
Likelihood Ratio	214.939	5	.000
Linear-by-Linear Association	141.853	1	.000
N of Valid Cases	403		
a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is .14.			

S28 OSS User Satisfaction * S8 Is OSS an alternative?

Crosstab							
Count							
		S8 Is OSS alternative?					
		NotAnswered	Always	Sometimes	Rarely	Never	Total
S28 OSS User Satisfaction	NotAnswered	75	6	5	3	1	90
	Excellent	2	47	21	5	5	80
	Very Good	0	86	45	12	2	145
	Good	0	21	41	11	8	81
	Bad	0	0	4	2	0	6
	Poor	0	0	1	0	0	1
Total		77	160	117	33	16	403

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	361.572[a]	20	.000
Likelihood Ratio	340.539	20	.000
Linear-by-Linear Association	122.094	1	.000
N of Valid Cases	403		
a. 13 cells (43.3%) have expected count less than 5. The minimum expected count is .04.			

A7. Regression Testing

A7.1. SEC->PE

Regression

Total number of participants for this analysis

Descriptive Statistics			
	Mean	Std. Deviation	N
S12 OSS - Enhances Effectiveness	1.56	1.043	403
S15 OSS Vs Closed/Proprietary – Security	1.77	1.261	403
S6 Experience	1.52	1.111	403

The below table shows the correlation between the variables

Correlations

		S12 OSS - Enhances Effectiveness	S15 OSS Vs Closed/Proprietary - Security	S6 Experience
Pearson Correlation	S12 OSS - Enhances Effectiveness	1.000	.677	.392
	S15 OSS Vs Closed/Proprietary - Security	.677	1.000	.438
	S6 Experience	.392	.438	1.000
Sig. (1-tailed)	S12 OSS - Enhances Effectiveness	.	.000	.000
	S15 OSS Vs Closed/Proprietary - Security	.000	.	.000
	S6 Experience	.000	.000	.
N	S12 OSS - Enhances Effectiveness	403	403	403
	S15 OSS Vs Closed/Proprietary - Security	403	403	403
	S6 Experience	403	403	403

The below table shows the variables used in this test

Variables Entered/Removed			
Model	Variables Entered	Variables Removed	Method
1	S15 OSS Vs Closed/Proprietary – Security	.	Enter
2	S6 Experience	.	Enter
a. Dependent Variable: S12 OSS - Enhances Effectiveness			
b. All requested variables entered.			

As per the below table, the Adjusted R square is .467 which means 46.7% variance is explained by the dependent variable by independent variables. R Square change is showing that 0.011 i.e.,1% change in the variance when moderator introduction. This shows that the IT specialty has a significant impact on the connection between SEC and PE.

Model Summary									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.677[a]	.459	.457	.768	.459	339.814	1	401	.000
2	.686[b]	.470	.467	.761	.011	8.523	1	400	.004
a. Predictors: (Constant), S15 OSS VS PS- SEC									
b. Predictors: (Constant), S15 OSS VS PS- SEC, S6 Experience									
c. Dependent Variable: S12 OSS - Enhances Effectiveness									

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	200.573	1	200.573	339.814	.000[b]
	Residual	236.687	401	.590		
	Total	437.261	402			
2	Regression	205.511	2	102.756	177.357	.000[c]
	Residual	231.749	400	.579		
	Total	437.261	402			
a. Dependent Variable: S12 OSS - Enhances Effectiveness						
b. Predictors: (Constant), S15 OSS VS PS- SEC						
c. Predictors: (Constant), S15 OSS VS PS- SEC, S6 Experience						

Coefficients[a]										
		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
Model		B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.570	.066		8.639	.000	.440	.700		
	S15 OSS VS PS- SEC	.560	.030	.677	18.434	.000	.500	.620	1.000	1.000
2	(Constant)	.477	.073		6.551	.000	.334	.620		
	S15 OSS VS PS- SEC	.517	.033	.626	15.450	.000	.451	.583	.808	1.237
	S6 Experience	.111	.038	.118	2.919	.004	.036	.186	.808	1.237
a. Dependent Variable: S12 OSS - Enhances Effectiveness										

A7.2. EE -> BI

The below table shows the total number of participants for this analysis 403

Descriptive Statistics			
	Mean	Std. Deviation	N
S28 OSS User Satisfaction	1.59	1.101	403
S14 OSS Vs Closed/Proprietary - Comfortable to use	1.60	1.136	403
S23 OSS - Easy Learning	1.55	1.154	403
S19 OSS Vs Closed/Proprietary - Flexible	1.59	1.130	403
S6 Experience	1.52	1.111	403

The below table showing the correlation between the variables used in this analysis

Correlations

		S28 OSS User Satisfaction	S14 OSS Vs Closed/Proprietary - Comfortable to use	S23 OSS - Easy Learning	S19 OSS Vs Closed/Proprietary - Flexible	S6 Experience
Pearson Correlation	S28 OSS User Satisfaction	1.000	.656	.647	.643	.459
	S14 OSS Vs Closed/Proprietary - Comfortable to use	.656	1.000	.646	.744	.486
	S23 OSS - Easy Learning	.647	.646	1.000	.692	.332
	S19 OSS Vs Closed/Proprietary - Flexible	.643	.744	.692	1.000	.412
	S6 Experience	.459	.486	.332	.412	1.000
Sig. (1-tailed)	S28 OSS User Satisfaction	.	.000	.000	.000	.000
	S14 OSS Vs Closed/Proprietary - Comfortable to use	.000	.	.000	.000	.000
	S23 OSS - Easy Learning	.000	.000	.	.000	.000
	S19 OSS Vs Closed/Proprietary - Flexible	.000	.000	.000	.	.000
	S6 Experience	.000	.000	.000	.000	.
N	S28 OSS User Satisfaction	403	403	403	403	403
	S14 OSS Vs Closed/Proprietary - Comfortable to use	403	403	403	403	403
	S23 OSS - Easy Learning	403	403	403	403	403
	S19 OSS Vs Closed/Proprietary - Flexible	403	403	403	403	403
	S6 Experience	403	403	403	403	403

This table showing variables used in this analysis

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	S19 OSS Vs Closed/Proprietary - Flexible, S23 OSS - Easy Learning, S14 OSS Vs Closed/Proprietary - Comfortable to use[b]	.	Enter
2	S6 Experience[b]	.	Enter
a. Dependent Variable: S28 OSS User Satisfaction			
b. All requested variables entered.			

As per the below table, the Adjusted R square is .547 which means 54.7% variance is explained by the dependent variable by independent variables. R Square change is showing that 0.020 i.e.2% change in the variance when moderator introduction. This shows that the IT specialty has a significant impact on the connection between EE and BI.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.729[a]	.531	.527	.757	.531	150.511	3	399	.000
2	.743[b]	.551	.547	.741	.020	18.175	1	398	.000
a. Predictors: (Constant), S19 OSS Vs Closed/Proprietary - Flexible, S23 OSS - Easy Learning, S14 OSS Vs Closed/Proprietary - Comfortable to use									
b. Predictors: (Constant), S19 OSS Vs Closed/Proprietary - Flexible, S23 OSS - Easy Learning, S14 OSS Vs Closed/Proprietary - Comfortable to use, S6 Experience									

The below Anova test table showing that the test is statistically significant as the P-value is <0.005

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	258.678	3	86.226	150.511	.000[b]
	Residual	228.582	399	.573		
	Total	487.261	402			
2	Regression	268.661	4	67.165	122.286	.000[c]
	Residual	218.600	398	.549		
	Total	487.261	402			
a. Dependent Variable: S28 OSS User Satisfaction						
b. Predictors: (Constant), S19 OSS Vs Closed/Proprietary - Flexible, S23 OSS - Easy Learning, S14 OSS Vs Closed/Proprietary - Comfortable to use						
c. Predictors: (Constant), S19 OSS Vs Closed/Proprietary - Flexible, S23 OSS - Easy Learning, S14 OSS Vs Closed/Proprietary - Comfortable to use, S6 Experience						

The below coefficient table showing the standardized path coefficient (β), t value, and P level (the relationships are significant when the t value>1.96 and p>0.05). All the highlighted results showing that the t value is > 1.96 and the p-value is >0.05 which means there is a significant relationship between the variables

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.347	.070		4.973	.000	.210	.484
	S14 OSS Vs Closed/Proprietary - Comfortable to use	.298	.052	.307	5.763	.000	.196	.400
	S23 OSS - Easy Learning	.297	.047	.312	6.317	.000	.205	.390
	S19 OSS Vs Closed/Proprietary - Flexible	.193	.055	.198	3.511	.000	.085	.301
2	(Constant)	.230	.074		3.119	.002	.085	.375
	S14 OSS Vs Closed/Proprietary - Comfortable to use	.233	.053	.241	4.410	.000	.129	.337
	S23 OSS - Easy Learning	.299	.046	.314	6.491	.000	.209	.390
	S19 OSS Vs Closed/Proprietary - Flexible	.174	.054	.179	3.227	.001	.068	.280
	S6 Experience	.163	.038	.164	4.263	.000	.088	.238
a. Dependent Variable: S28 OSS User Satisfaction								

A7.3. PE->BI

The total number of participants for this test is 403

Descriptive Statistics			
	Mean	Std. Deviation	N
S28 OSS User Satisfaction	1.59	1.101	403
S12 OSS - Enhances Effectiveness	1.56	1.043	403
S13 OSS - Enhances Productivity	1.51	1.047	403
S21 OSS Vs Closed/Proprietary - Credibility	1.67	1.170	403
S24 OSS Modification	1.56	1.162	403
S6 Experience	1.52	1.111	403

The below table showing the Correlation between the variables

Correlations							
		S28 OSS User Satisfaction	S12 OSS - Enhances Effectiveness	S13 OSS - Enhances Productivity	S21 OSS Vs Closed/Proprietary - Credibility	S24 OSS Modification	S6 Experience
Pearson Correlation	S28 OSS User Satisfaction	1.000	.633	.685	.630	.561	.459
	S12 OSS - Enhances Effectiveness	.633	1.000	.772	.634	.504	.392

	S13 OSS - Enhances Productivity	.685	.772	1.000	.670	.565	.438
	S21 OSS Vs Closed/Proprietary - Credibility	.630	.634	.670	1.000	.593	.369
	S24 OSS Modification	.561	.504	.565	.593	1.000	.374
	S6 Experience	.459	.392	.438	.369	.374	1.000
Sig. (1-tailed)	S28 OSS User Satisfaction	.	.000	.000	.000	.000	.000
	S12 OSS - Enhances Effectiveness	.000	.	.000	.000	.000	.000
	S13 OSS - Enhances Productivity	.000	.000	.	.000	.000	.000
	S21 OSS Vs Closed/Proprietary - Credibility	.000	.000	.000	.	.000	.000
	S24 OSS Modification	.000	.000	.000	.000	.	.000
	S6 Experience	.000	.000	.000	.000	.000	.
N	S28 OSS User Satisfaction	403	403	403	403	403	403
	S12 OSS - Enhances Effectiveness	403	403	403	403	403	403
	S13 OSS - Enhances Productivity	403	403	403	403	403	403
	S21 OSS Vs Closed/Proprietary - Credibility	403	403	403	403	403	403
	S24 OSS Modification	403	403	403	403	403	403
	S6 Experience	403	403	403	403	403	403

The below table shows that variables used for this analysis

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	S24 OSS Modification, S12 OSS - Enhances Effectiveness, S21 OSS Vs Closed/Proprietary - Credibility, S13 OSS - Enhances Productivity	.	Enter
2	S6 Experience[b]	.	Enter

a. Dependent Variable: S28 OSS User Satisfaction

b. All requested variables entered.

As per the below table, the Adjusted R square is .563 which means 56.3% variance is explained by the dependent variable by independent variables. R Square change is showing that 0.016 i.e.1.6% change in the variance when moderator introduction. This shows that the IT specialty has a significant impact on the connection between PE and BI.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.743[a]	.552	.547	.741	.552	122.585	4	398	.000
2	.754[b]	.568	.563	.728	.016	15.007	1	397	.000

a. Predictors: (Constant), S24 OSS Modification, S12 OSS - Enhances Effectiveness, S21 OSS Vs Closed/Proprietary - Credibility, S13 OSS - Enhances Productivity

b. Predictors: (Constant), S24 OSS Modification, S12 OSS - Enhances Effectiveness, S21 OSS Vs Closed/Proprietary - Credibility, S13 OSS - Enhances Productivity, S6 Experience

The below Anova test table showing that the test is statistically significant as P value <.005

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	268.955	4	67.239	122.585	.000[b]
	Residual	218.305	398	.549		
	Total	487.261	402			
2	Regression	276.907	5	55.381	104.521	.000[c]
	Residual	210.354	397	.530		
	Total	487.261	402			

a. Dependent Variable: S28 OSS User Satisfaction

b. Predictors: (Constant), S24 OSS Modification, S12 OSS - Enhances Effectiveness, S21 OSS Vs Closed/Proprietary - Credibility, S13 OSS - Enhances Productivity

c. Predictors: (Constant), S24 OSS Modification, S12 OSS - Enhances Effectiveness, S21 OSS Vs Closed/Proprietary - Credibility, S13 OSS - Enhances Productivity, S6 Experience

The below coefficient table showing the standardized path coefficient (β), t value, and P level (the relationships are significant when the t value>1.96 and p>0.05). All the highlighted results showing that the t value is > 1.96 and the p-value is >0.05 which means there is a significant relationship between the variables

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.229	.073		3.151	.002	.086	.372
	S12 OSS - Enhances Effectiveness	.177	.058	.168	3.075	.002	.064	.290
	S13 OSS - Enhances Productivity	.335	.061	.319	5.498	.000	.215	.455
	S21 OSS Vs Closed/Proprietary - Credibility	.195	.046	.207	4.197	.000	.104	.287
	S24 OSS Modification	.164	.041	.173	3.976	.000	.083	.245
2	(Constant)	.134	.075		1.776	.076	-.014	.282
	S12 OSS - Enhances Effectiveness	.163	.057	.155	2.877	.004	.052	.275
	S13 OSS - Enhances Productivity	.299	.061	.284	4.926	.000	.180	.418
	S21 OSS Vs Closed/Proprietary - Credibility	.187	.046	.199	4.096	.000	.097	.277
	S24 OSS Modification	.142	.041	.150	3.473	.001	.062	.222
	S6 Experience	.143	.037	.145	3.874	.000	.071	.216

a. Dependent Variable: S28 OSS User Satisfaction

A.8. Ethics Forms

Wintec
WAIKATO INSTITUTE OF TECHNOLOGY
Te Kuratini o Waikato

Research and Postgraduate Office (RPGO)

Human Ethics in Research Group (HERG)

LOW-RISK HUMAN ETHICS IN RESEARCH APPLICATION FORM

Please refer to the Ethics Guidelines prior to completing this application.

The RPGO is located at the City Campus, D-Block (Offices D2.22 – D2.24), email research@wintec.ac.nz or phone Megan Allardice on Ext. 3582 for more information.

Please see the last page of this document for detailed instructions for completing this form.

1.0 PROJECT TITLE	
	A Review of Factors Influencing Open Source Software Adoption by Users in IT Profession

2.0 RESEARCHER(S)		
2.1	Primary researcher's name	Mounika Thallapureddy
2.2	School//Centre/Unit	Centre of Business and Information Technology
2.3	Contact Details (Telephone and E-mail)	Telephone: 0220613283 Email: moutha04@student.wintec.ac.nz
2.4	Is this application a:	☒ Student Application ☐Staff Application
2.5	If this is a student application, please provide the Module code here	INFO803
2.6	Is this project a staff application that utilises work partially or wholly undertaken by students who are not participants (e.g. data collection undertaken by a researcher's class)?	No
2.7	If so, please clearly describe what the role of these students is to be in this research, what the work will be used for explicitly (including any issues regarding authorship of research outputs such as journal articles), and what steps have been taken to ensure students are aware of this.	Not applicable
2.8	Name of other Researcher(s) and positions. (If this is a student application please provide the name(s) of the project supervisor(s) and indicate that they are supervisors here.)	Dr. Monjur Ahmed Dr. Diab Abuaiadah

2.9	Contact Details of other researchers and/or supervisors (Telephone and Email)	Email: monjur.ahmed@wintec.ac.nz diab.abuaiadah@wintec.ac.nz
2.10	Is this application:	☒ A new application ☐subsequent approval request following a significant change to an already approved application

3.0 PROJECT TIMELINE

Projected start date for **data collection** *(once this ethics application is approved. Please note, projects can only begin once applications have been approved, regardless of the level of risk)*:

Projected end date: end of next semester.

4.0 PROJECT SUMMARY (please include your research purpose and objectives, methodology will be dealt with in Section 6)

The research aims to find the factors influencing the usage and adoption of OSS by IT professionals. This study focuses on how software features such as security, quality, cost, and complexity influence the users to accept OSS usage. Hence, this study will help to find whether OSS is a better option over other types of software or not.

The theoretical framework of this research is a "unified theory of acceptance and use of technology (UTAUT)" by Venkatesh (Venkatesh et al., 2003). This model will be used quantitatively to retrieve the results for the research questions from the survey.

5.0 PROJECT METHODOLOGY (including methods for data collection)

For this research, a population size of 4.36 million IT professionals will be considered, with a confidence interval of 4 and a confidence level of 95%, hence generating a sample size of 600 (Source: Creative Research System, n.d.).

This research model is based on the unified theory of acceptance and use of technology (UTAUT) by Venkatesh will identify the factors influencing OSS adoption and usage by IT professionals. This research will use online statistical tools to analyze the results and retrieve answers to the research questions.

Statistical significance online survey and content of the questions not the survey design

6.0 CONSIDERATON OF ETHICAL ISSUES AND PROCESSES

Please describe below the process that you have undergone to discuss and analyze the ethical issues present in this project. (For example, who have you consulted in regard to ethical issues or in completing the screening questionnaire and this Low Risk application)

All the following ethical considerations are addressed in the research:

Risk of Harm

This research will involve a literature review and a public online survey.

The public online survey contains general questions regarding the different software products, especially OSS products. These questions do not cause embarrassment, discrimination, discomfort, anxiety, or insecurity to participants.

Informed and Voluntary Consent

A participant consent form will be provided to the participants at the start of this research's online survey. So, the participants will be fully informed of the research's purpose and how the findings will be used. This research will also provide an information sheet before the start of the survey, including the purpose of the research, expectation from participants, duration of the survey, what happens to the information they will provide, confidentiality, and the availability of research results from them. In case participants change their minds, they are free to withdraw their participation at any point in time without affecting their actions in other future research. There shall be no pressure imposed on those who start their participation, and they must not be asked for any explanation.

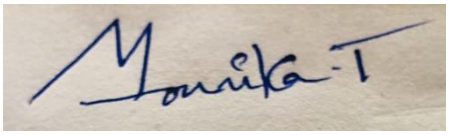
Privacy and Confidentiality

This research is not inclusive of any evaluation or investigation of organizational services or practices. No personal or sensitive data will be collected; the participant will remain anonymous.

Conflict of Interest

This research will involve a public online without any Wintec students or staff participating.

Researcher(s) signature(s) (the <u>name and signature</u> of all researcher(s) are to be included):

Name	Signature	Date
Mounika Thallapureddy		05/03/2021

Primary Supervisor's signature (if this is a student application):

Name	Signature	Date
Dr. Monjur Ahmed		

Research Leader's signature:

Name	Signature	Date
Dr. Monjur Ahmed		

HERG Chairperson or delegated representative's signature (RPGO use only):

Name	Signature	Date

COMPLETING THIS FORM

Please note: A low risk research project is one in which the nature of the potential/actual risk of harm to participants or the researcher is minimal and no more than is normally encountered in daily life. If, as a staff member, you are new to research or are in any doubt as to which application to submit, please consult with your Research Leader. If you are a student, your Supervisor will be able to give you advice. If you are still in any doubt, don't hesitate to consult the RPGO.

Specific Instructions

- All questions are to be answered. Note the questions within require a mix of descriptions, yes/no answers and cross the box (**Double-click on check boxes with your mouse and select 'Checked' from the options under 'Default Value'**).
- Research Leaders need to review the information in this form and sign it off before application being made to the RPGO.
- Please forward one signed original copy to the RPGO, together with an electronic version to research@wintec.ac.nz.
- Low-Risk Human Ethics in Research Applications also need to be accompanied by a copy of the Information Sheet, Consent Form, and any Questionnaires or Interview Schedules for consideration. If Questionnaires/ Schedules are not yet confirmed, please supply the latest draft.
- No questions are to be deleted, even those that you feel you are not required to answer.
- No part of the research requiring ethical approval should commence prior to approval being confirmed.
- Applicants will receive an official confirmation of submission via email from the RPGO once all conditions of this form have been completed.
- If you want to apply for an extension on a previously approved project, please contact the RPGO, as you will probably not need to submit a separate application.
- Applicants will be advised of the outcome of their application to the Human Ethics in Research Committee **no later than ten working days** after the completed and confirmed submission of this application.

HUMAN ETHICS IN RESEARCH LOW RISK APPLICATION FORM - CHECK LIST	
Research project title:	**A Review on Factors Influencing Open Source Software Adoption by Users in IT Profession**
Name of primary researcher:	Mounika Thallapureddy

Attached please find (as applicable) in the order listed below	

Completed HERG Low Risk Application Form	☒ Yes ☐ No
Consent Form for participants	☒ Yes ☐ No
Information Sheet for participants	☒ Yes ☐ No
Copy of Focus Group Questions, Interview Schedule, or similar	☒ Yes ☐ No

A9: Participant Consent Form

A consent form is adding to the survey and but not collecting the name.

I consent by hitting the button below to being a participant in the above-titled research project, and I attest to the following:

1. I have been informed thoroughly of the purpose and aims of this project

2. I understand the nature of my participation

3. I understand the benefits that may be derived from this project

4. I understand that I may review my contributions at any time without penalty

5. I understand that I will be treated respectfully, fairly, and honestly by the researcher/s, and I agree to treat the other participants in the same way

6. I have been informed of any potentially harmful consequences to me of taking part in this project

7. I understand that I may withdraw from the project at any time (without any penalties)

8. I understand that my anonymity and privacy are guaranteed, except where I consent to waive them

9. I understand that information gathered from me will be treated confidentially, except where I consent to waive confidentiality

10. I agree to maintain the anonymity and privacy of other participants, and the confidentiality of the information they contribute.

Participant……Date……

Principal Researcher……..Date……

A10: Participant Information Sheet

Project Title: A Review on Factors Influencing Open Source Software Adoption by Users in IT Profession

Institution: Wintec, Hamilton City Campus

Researcher: Mounika Thallapureddy

About the Survey

I would like to invite you to take part in this research study by completing an online survey. Before you go ahead, please take some time to read the following information, which will help you understand this research's purpose and what it would involve. You can discuss it with others, and feel free to ask questions if there is anything that you may not be sure about any questions. Thank you for reading this.

Purpose of this research

This research's main aim is to identify the factors influencing the usage and adoption of OSS by users in Information technology. This study will help understand the impact of software characteristics such as cost, maintenance, quality, security, user performance affecting the OSS acceptance. I will use an online survey to gather the views of IT professionals in this study.

Expectation from participants

You have been invited to take part in this research because you are an IT Professional. You have the required knowledge and experience that may prove to be significant for this research.

Duration of the survey

This online survey will not take more than 15 minutes of your time to complete.

Explain where the data will be collected

The information will be collected through an online survey.

What will happen to the information provided?

The information provided by you will be used to generate results for this research project. This information will be stored in a password protected computer

Do you have to participate?

Participation in this online survey is voluntary. It is up to you to decide whether you wish to participate. However, if you want to go ahead, you can keep a copy of this information sheet, and you should indicate your agreement by pressing that 'okay' button. You are free to withdraw your participation at any point in time without providing any reason.

Will your participation be kept confidential?

All the information collected from you during the research period will be kept confidential. You will not be identified in any form.

Will your participation be acknowledged, and how?

All participant's information will be kept confidential. The results of this research will be made available to the participants only on request.

Where will the research results be made available?

The results of this research will be published in the research report. Your information will always be kept confidential. However, if you wish to receive a copy of this report, kindly send an email to the author.

A11: Ethics Approval

Waikato Institute of Technology
Research Office
D Block, Tristram Street / Private Bag 3036
Hamilton 3240
e-mail research@wintec.ac.nz
Telephone 07 834 8800 Extn 3582

7 March 2021

Centre for Information Technology
Mounika Thallapureddy

Dear Mounika,

LOW-RISK HUMAN ETHICS RESEARCH APPLICATION
Approval reference WTLR08010321

Title: A Review on Factors Influencing Open Source Software Adoption by Users in IT Profession

Thank you for your Low-Risk Ethics application which was considered by the Chairperson of the Human Ethics in Research Group on 6 March2021. I am pleased to inform you that an approval has been granted for this application.

This ethical approval is granted up to 31 December 2021, or until the project is completed, whichever comes first.

On behalf of the Chairperson and members of the Human Ethics in Research Group, we wish you every success with your research endeavours.

Kind regards

p.p. Elizabeth Bang
Chairperson
Wintec Human Ethics in Research Group.

C.c. Monjur Ahmed, Diab Abuaiadah, Supervisors